SAVE IT *for* WINTER

F. F. ROCKWELL

SAVE IT FOR WINTER

Provide an abundance of clean, healthful and savory vegetables and fruits for your winter table. Make your garden help cut down living expenses and doctor's bills for fifty-two weeks in the year. "Save it for winter!"

Save It For Winter

Modern Methods of Canning, Dehydrating Preserving and Storing Vegetables and Fruit for Winter Use

With Comments on

THE BEST THINGS TO GROW FOR SAVING AND WHEN AND HOW TO GROW THEM

BY

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ILLUSTRATED

NEW YORK

FREDERICK A. STOKES COMPANY

PUBLISHERS

ACKNOWLEDGMENT

In the preparation of this little book I have found much assistance in the bulletins and pamphlets prepared by the Department of Agriculture, the National War Garden Commission, the various Agricultural Colleges, especially of California and Pennsylvania, and the helpful literature of Ball Brothers Manufacturing Company, The Kerr Manufacturing Company ("Economy" jars), The Southern Canner and Evaporator Company, The Home Canner Company, The Weis Fiber Manufacturing Company, etc.

THE AUTHOR.

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PREFACE

WHAT is the most important thing in the world?

Did you ever stop to think that it is nothing more nor less than *saving food for winter?*

Upon our ability to keep food for future use is built the whole fabric of civilization. With the science, or the art—for it partakes of both—of food preservation wiped out of existence, that civilization would have to fall, and the races of mankind revert to nomadic tribes scouring the earth's surface for such food as Nature provided, and starving when they could not find it.

All industry is based upon *saved food.* Only when one man can produce and keep food enough for himself and for some one else whose labor is devoted to the making of other things, can there be any beginning of

commerce and industry, even in crude forms; and our tremendously complicated industry and social system of the present day depends wholly upon one man's being able to grow and save the food for many men.

Even with our improved machinery and improved agricultural methods, however, there is a limit to the number of men whom one man can possibly support. When enough persons have been removed from food production, and enough of the stored food of the world has been consumed and destroyed, we must inevitably reach a point where the world will face starvation. How far off that point is no one can say with certainty; but now, in the third year of the Great War, it is nearer than it has been at any time in modern history—so near that a large part of the world already faces chronic hunger. And at various local points many thousands will die of actual starvation during the coming year; it is already a physical impossibility to get food to them all in time to prevent that. And starvation for the world is certainly so near

that a year of poor crops may precipitate it among us, even here in our own land where, although we have not produced very good average yields per acre, our farmers have been producing more per capita than those of any other country.

Hunger is Emperor!

After all is said and done, despite the purple and ermine trappings of royalty, the clattering scabbards of stalking generals, and the subversive glitter of banker's gold, He, half-shod and in rags and tatters, is revealed as the autocrat supreme, unmaking autocracies —as the Great Dictator, directing, from garret and gutter, the destinies of empires!

Hunger is Emperor, and his kingdom is anarchy. His purposes are accomplished not by evolution but by revolutions. His real entry into the war will bring the tides of battle rolling back from the far-flung fronts to the capitals from which they started. Then order must fall before chaos. The world will stand on the brink of the chasm of the past,

facing the possibility of slipping generations backward.

Thus there are indeed pregnant possibilities that the Great War may be succeeded by a greater war, a war of Humanity against Famine.

The saving of food therefore becomes of more importance than ever before, from every point of view: as a personal necessity; as the most commonsense kind of patriotism; and as a social obligation. The individual may feel that the few quarts of beans or of tomatoes saved for winter use that would ordinarily be allowed to go to waste, or the few square feet of ground which he may plant especially for winter use, make but a very trivial effort toward stemming this tide of starvation. But it is only by the continued efforts of thousands of individuals that the menace of hunger can be averted, and each one who does his or her part is contributing to the common cause.

Every jar of canned goods or preserves put up, every pound of dehydrated vegetables or

fruit, will be not only a help to the home budget, but mean an extra portion for some hungry family across the seas.

F. F. R.

Fordhood Farms,
May, 1918.

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CHAPTER I

WHY YOU SHOULD KEEP IT FOR WINTER

Does it pay to save summer foodstuffs—vegetables and fruits—for winter?

Does it really *pay* to do it—or has all the recent agitation for the canning and drying of vegetables and fruits been merely a war measure made necessary by the unusual conditions which exist throughout the world and therefore of little importance once the great conflict ends?

To any one who has had much experience with the real modern methods of keeping food for future use there can be no doubt that it does pay, and pay handsomely. The new methods require very much less time and involve much less work than those which have been in general use up to the present time.

The practice of both canning and drying has been practically revolutionized within the last few years. The new methods compared with those formerly in vogue are so simple that many persons have been inclined to doubt their efficacy until they became convinced by actual trial. The saving of food by these methods does pay even those who are located in cities and have not the facilities for producing the vegetables and fruit they can so easily save for winter.

Saving food for winter pays because it prevents waste. The surplus from the home garden, or the cheap products of a glutted summer market, may be kept for the time when vegetable food is scarce and high in price.

Saving food for winter pays because it enables you to make use of your garden, if you have one, to help support your family during twelve months of the year instead of only six or seven. The commonly held idea that these methods of saving foodstuff apply wholly or chiefly to *surplus* garden products

is erroneous. To take full advantage of the benefits which food-saving makes available one should grow crops especially for this purpose. This not only makes the work easier but permits making the most profitable second use of the ground occupied by the summer garden and allows one to plan systematically for the winter's requirements instead of just having what is "left over" from the summer garden.

Saving food for winter pays because it furnishes a healthier diet. Home saved products, if carefully prepared, will be better than those which you are likely to be able to buy, and so much cheaper that a greater proportion of them in the daily menu will be used. We Americans have been, next to the Australians, the greatest meat eaters in the world —not because so much meat constituted a healthy diet but because, owing to our prairie ranges and other cheap sources of production, meat was more inexpensive to get and easier to procure and prepare than vegetables. Times have changed; meat in Amer-

ica, in comparison with vegetable products, will never be so cheap again. Those who prepare to take advantage of the cheap vegetable supplies of summer, whether bought or home grown, will be on the road to more hygienic as well as more economical living.

Saving food for winter pays because the actual expense of preparing and keeping vegetable food for this purpose has been greatly decreased by the new method, in spite of the higher prices of many of the things used. Dehydrated vegetables of many kinds will largely take the place of canned vegetables. This means a tremendous saving in the cost of containers and in the amount of space required to keep the products. Improved utensils have cut down the labor required in preparing and putting up the food. The percentage of food lost by "spoiling" has been cut from a very considerable amount to almost nothing.

And, above all, saving food for winter will pay, while the world-wide holocaust of the present war continues, with its consequent

bringing of famine conditions to millions of people, because it is a duty to one's country, to humanity in general, which cannot with a clear conscience be shirked. Inasmuch as you can save food, even though it be but a single pound, you have contributed directly to the well-being of one of the starving fellow-citizens of the world!

CHAPTER II

WHY FOOD "SPOILS" AND HOW TO "KEEP" IT

As soon as vegetable food products mature or are gathered for market or for the home table they begin to deteriorate, and in most cases within a very short time become decayed, shriveled, or otherwise unfit for use as food.

Why does food spoil?

The answer is to be found in that now well-known household word—"bacteria."

Bacteria, or vegetable molds, in such forms that they are not visible to the naked eye, are ever lying in wait to attack the surface or the tissues of every form of vegetable life immediately the latter dies or is killed by harvesting. Some vegetables, however, naturally go through a dormant period after actual growth ceases, before their natural cycle of life is completed. These things,

which are generally termed "non-perishable" vegetables or fruits, are, under favorable conditions, more or less immune for a certain length of time from the attacks of the destructive bacteria. Even these food products, however, will quickly "spoil," either as the result of being attacked by bacteria or through partial evaporation of the moisture which they normally contain, if the conditions under which they are kept are not similar to those provided by Mother Nature in the plan of existence which she has worked out for them.

How, then, are our foods to be kept from spoiling?

Our first problem, of course, is to find some means of keeping the destructive bacteria away from the product which they are waiting to attack and destroy. This can be done either by keeping them away by a physical barrier from the product, or by furnishing conditions which are unfavorable to the existence of the bacteria themselves. In the case of non-perishable products such as po-

tatoes, many root crops, and some fruits, we must supply conditions similar to those which nature intended and which will discourage the development of the obnoxious bacteria.

By what means may these results be accomplished?

There are, to use common terms, four methods of accomplishing these results: First, by *canning;* second, by *drying;* third, by *pickling* or *preserving;* fourth, by *storing.* All of these words are familiar household terms to the layman; yet, without a doubt, not one out of ten persons who use these terms ever stops to think how the various methods accomplish what they do accomplish, making it possible for us to eat three square meals for three hundred and sixty-five days in every year. Any one who is interested in saving food should have a working knowledge of the general principles upon which the ordinary methods of saving food are based. Such knowledge should be had not merely as a matter of information but because it is of practical use in enabling one to do the work intel-

ligently and accurately, thus assuring better results.

CANNING

By "canning" we mean the saving of fruits or vegetables for future use by placing the product in a container of tin, glass, or other material, which is afterward hermetically sealed. The product "keeps," because the bacteria, which would otherwise cause it to spoil, are actually prevented from getting at it. If we merely put it in cans or jars and filled it up, however, millions of the bacteria would be sealed up with it and continue their nefarious work. Therefore, before sealing it up, it is necessary to destroy all the bacteria already in the product. This is done by heating to a certain temperature for a required length of time. The bacteria already in the food, when sufficiently cooked to be destroyed, have become harmless. This may not sound particularly appetizing, but it is what actually happens. The food has been "sterilized," and if it can be sealed up be-

fore any other bacteria can get to it, it will be safe to keep for an indefinite period until wanted for use.

These facts have been known for a long time. Recently, however, a further fact has been discovered which has very greatly simplified the different methods of canning. For generations housewives have known that corn was very hard to keep even if carefully canned. Corn and tomatoes put up together, however, keep very well. The reason for this, as we have now come to know, is that the *acid* in the mixture, supplied by the tomatoes, makes living conditions which the bacteria refuse to tolerate. Experiments proved that they expired much more quickly in, and were easily kept out of, a slightly acid solution. As a result, the modern practice of putting a little acid, such as lemon juice, with vegetables which are hard to keep, has resulted in the saving of a tremendous amount of work in canning these things and a great saving in the amounts lost by "spoilage" after canning.

DRYING

Most vegetables and fruits in their normal condition are made up very largely of *water*. Many of them contain 80 to 90 per cent. of plain ordinary H_2O. A pumpkin is actually *more fluid* than milk—if its cell-structure were the same as that of milk it would be served at the table in a pitcher and poured out into glasses! Now these little bacteria which I have referred to—and will have to mention again many times in the following chapters—cannot increase and multiply unless their surroundings contain a certain amount of moisture.

Long ago our ancestors, when they still wore callouses instead of cordovans on their feet, and furs around their loins instead of around their necks, discovered that certain fruits put on hot stones in the sun or strung up on strings to dry, could be saved for winter. Of course they knew not the reason for this, but the fact was of very practical importance. Up until the days of our grand-

mothers, fruits generally and a few vegetables were "sun dried," or dried over the stove, or "evaporated," very generally.

Then canning came in, and as these dry products were hard to prepare and not wholly satisfactory, evaporating became almost a lost art in the home. In certain dry climates it continues to be used extensively in the preparations of certain fruits for market. But by the new methods vegetables and fruits of almost all kinds can be dried easily, quickly, and cleanly in the home with inexpensive apparatus. There is every indication that within the next few years dried vegetables will again be as common in every home as canned vegetables. By the new methods we take the moisture out with a continuous current of heated air, called the process of "dehydrating," which in plain English means "taking out the water"—and thus frustrate the diabolical purposes of the destructive bacteria which would otherwise claim our vegetables and fruits as their natural prey.

PICKLING AND PRESERVING

Fruits, vegetables, or nuts to be "pickled" are put into an acid or saline solution. Pickled products "keep" merely because the bacteria, which constitute the army of General Decay, refuse to live and have their being in the brine or acid saturated tissues of the product. Those who are familiar with the old fashioned Dill Pickle, hooked out of an open barrel and handed out on a piece of brown wrapping paper, can in this instance sympathize with the bacteria! But there are good pickles, mighty good pickles. No supply of things to be kept for winter can be considered complete without a generous proportion. And, personally, I have never been able to understand why it is impossible to get manufactured pickles which are as good as those made at home, but such seems to be the case.

Sugar, like salt and acid, is used to help to preserve certain fruits and vegetables by making a condition that is unfavorable to

the growth of destructive micro-organisms. It is the "common-denominator" in most jellies, preserves, and conserves. In many cases, however, much more sugar is used than is really required. This not only makes an unnecessary expense, but also a product that is insipid or oversweet, where a much more appetizing one might just as well be obtained. The use of perfectly fresh fruit and of sanitary methods in putting up the product will help materially in cutting down the amount of sugar necessary.

STORING

Vegetables to be "stored" for winter are merely put where they will be under conditions, as nearly as possible, like those Nature intended them to have, and where the presence of bacteria will be discouraged, and the evaporation of water from the plant tissues, causing them to wilt or shrivel, will be as far as possible prevented. Storerooms, cellars and vegetable-pits are familiar to most people. It is, however, surprising how little use

is made of some of the simple methods of keeping vegetables over winter where there is not a storeroom or a good cellar. These may be found described in detail in the chapter on the storing of vegetables and fruits.

And so, after all, the general principles involved in the matter of saving food for future use are not complicated, and the work by modern methods is not difficult. If you would live more cheaply and more healthfully than you have heretofore, "save it for winter!"

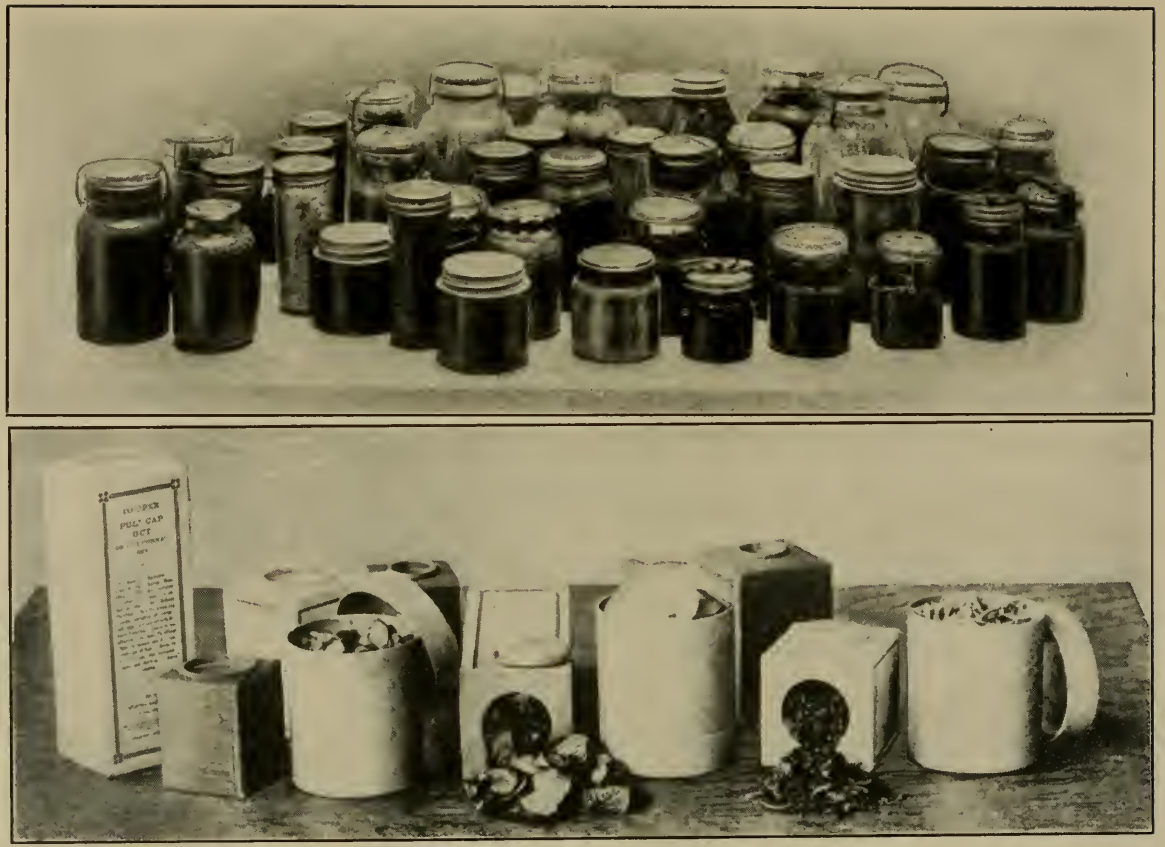
CHAPTER III

WHAT CAN BE SAVED

What range of variety can we have in the garden which is grown for storing in the cellar and on the pantry shelves for winter?

With the old methods which were used almost exclusively until within the last few years, the number of vegetables and fruits which could be conveniently put up with any degree of certainty that they would not "spoil" was quite limited.

With the newer methods, however, suggested in the previous chapter and described in detail in those to follow, and by using all of the methods of food saving outlined, it is possible without any elaborate equipment or expert training in the work, to save for winter almost the complete range of vegetables and fruits which we enjoy from the summer garden.



With modern methods the number of vegetables and fruits which may be saved for winter includes almost the entire list. The winter supply of canned and dehydrated products above is representative of what can be done in any well ordered kitchen.

There are, of course, many conditions which affect the success of the food saving enterprise in any particular case. Some vegetables may be kept very easily and others are very difficult to keep; for this and for other reasons no general rules for either canning, drying or storing will apply. The first thing which any one who is beginning the practice of food saving should thoroughly understand is that directions must be followed carefully.

Another factor affecting success is the condition of the product to be saved. The old rule of procedure that, "We eat what we can and what we can't we can"—or as the Englishman repeated it, "We eat what we can and what we can't we tin"—cannot be counted upon if one wishes either satisfactory quality in the product put up or full success in keeping the things that are put up. In this chapter are mentioned most of the fruits and vegetables which ordinarily can be satisfactorily kept for winter.

GETTING THE RAW MATERIALS RIGHT

All the products used for canning, drying, or storing should be in perfect condition.

Neglect in this particular is the cause of more trouble and loss than probably any other one thing in connection with keeping food for future use. For the best results it is necessary not only to have products which are absolutely free from decay, but to have those that are at just the right stage of development or ripeness to be used to give a product of superior quality. Much of the prejudice against canned vegetables and fruit has been due to the fact that the general source of raw materials was surpluses from the garden. These surpluses were not made use of for canning or for drying until they had passed their prime, so far as table quality was concerned, and had begun to deteriorate in this respect even if perfectly firm and sound and free from decay. Vegetables of many kinds change decidedly in texture as they reach maturity, and become pithy or

fibrous; this makes them not only poor in quality but much more difficult to prepare.

There is another reason why the product to be used for saving for winter should be obtained or gathered while comparatively young. In many vegetables and fruits, further growth or chemical changes continue to take place even after harvesting. There is always a tendency for the vegetable or fruit to reach complete maturity before being subject to the attacks of destructive bacteria. Therefore all products which are fully matured or overripe have a tendency to spoil much more quickly than the same products if taken at an earlier stage of development.

Hence there are many reasons why all decayed stuff, or even overripe or overmatured vegetables or fruit, should be discarded, or, if not bad enough for that, put up by themselves, when canning or drying. These second grade products, if put aside for early use, may be well worth keeping; mixed with other things, however, they might become a

source of contagion that would result in considerable loss.

The modern idea of saving foodstuffs for winter, however, is not merely to make use of surpluses, but to plant and to grow crops especially for this purpose. In this way they may be had when there is most time to do the work and gathered when they are in perfect condition.

Most of the fruits, of course, must be taken in their regular season, but provision can be made in advance to can or dry them immediately they have been obtained. All soft fruits begin to spoil very quickly, and where there is a day or two of delay in getting ready to do the work after they have been bought or picked, there is a great deal more work in putting them up, and a product of doubtful quality.

In both canning and drying vegetables, also, it is important to use them the same day that they are gathered, if possible. With products from the home garden, everything should be in readiness in the kitchen before

one goes into the garden after the crops that may be wanted.

In the following paragraphs the suggestions are given as to just when the different vegetables or fruits should be used to be in the best condition, with a mention of the varieties which will prove satisfactory for this purpose, and especially satisfactory for saving for winter. In the planting table at the end of the chapter are shown the approximate number of days that it will take the different crops to be ready for use and the date for planting to have them ready at a given time.

VEGETABLES AND FRUITS THAT CAN BE SAVED AND HOW TO GET THEM IN THE BEST CONDITION

Asparagus: This is usually kept by canning but may also be dried. Surplus may readily be used, but if setting out a new bed it will be well to allow for saving part of the crop for winter use. Preparation for both canning and drying is easy, and the keeping qualities are good. The crop is ready to save

from early spring to June. If white stalks are preferred they should be produced by hilling up along the rows before the sprouts start.

Beans: These are one of the most valuable and most profitable vegetables to be saved for winter. Many kinds, of course, can be saved in the dry state, and generous plantings of these should be made. The snap and butter or Lima beans can be saved for winter by canning or dehydrating. They are easy to prepare and sometimes they are kept by pickling in a salt pack. While surpluses may be used, it is better to make plantings especially for winter use; otherwise the seeds will be of uneven development with many too old to be of the best quality. Beans are very easily grown and yield heavily, the preparation is easy and they keep excellently. The snap and butter varieties can be had any time during summer or early fall. Those wanted to keep in a dry state are usually planted in time to mature early in the fall. For canning or drying beans, use Stringless

Green Pod or Brittle Wax or other similar types. Where the space is limited a large yield may be obtained by planting pole varieties, such as Kentucky Wonder, McCasland, or Golden Cluster. For drying there are, among the dwarf sorts, several different types, such as Kidney Beans, Navy Beans, and Boston Pea Beans, all of which grow readily even on soil which might be considered a little poor for most garden vegetables. Pole beans, such as the Horticultural and Case Knife, are grown especially for keeping in the dry state; most of the early varieties of bush beans, the bush Limas and the pole Limas can be kept for winter in the dry state if the surplus pods are picked and carefully dried and stored as soon as they mature.

Beets: While the simplest way of keeping beets, where the facilities are present, is to store them, they can also be tinned, dried or pickled. While small amounts may be put up from the garden surplus by the drying method, it is much better to make one or more plantings particularly for winter use.

Beets to be stored for winter should always be grown especially for this purpose from a late planting. The yield is large for the space occupied, the crop is one very easily grown, and the keeping qualities are excellent, so that altogether beets are among the best vegetables for winter use. They may be had as planned for any time from early summer on. If for drying it will be well to have them ready before real hot weather is over. If for canning, early in the fall when the work can be done more conveniently. The crop planned for storing should be planted so late that they will be just good table size in time to take them out of the ground before freezing. Early Model and Dark Red Ball are two extra high quality varieties, the latter being of a very deep color which makes it attractive for keeping. For winter storage I know of no sort superior to Detroit Dark Red.

Brussels Sprouts: This member of the cabbage family is particularly hardy and can be kept out of doors where grown until

Christmas or later and is easily stored thereafter. To most people's taste they are more delicious than the best cabbage. The yield, however, is not as great. If wanted for winter use, they should, of course, be planted to mature later in the fall.

Cabbage: One of the most universally used winter vegetables, as it is readily stored and transported. It is, however, rather bulky, and where space is limited can be kept easily by drying; also used to a large extent pickled. Surplus cabbage in the garden is usually wasted but can easily be kept by dehydrating. A special planting, however, should be made for winter use. The yield is large, preparation for keeping is easy, the keeping qualities are excellent, and for every family which is not too aristocratic to object strenuously to having its unpleasing odor penetrate through every room in the house, it should form one of the mainstays of the winter vegetable supply. Copenhagen Market and All Seasons are two of the best varieties for summer use, Danish Ballhead and

Flat Dutch are the two standards for winter storage. The latter is more sure to make good heads though not quite so solid. The Savoy or Wrinkled Cabbage is a finer quality than any of the others, and is especially good for dehydrating.

Carrots: They are usually stored like other winter root crops. Carrots are very easily and very well kept by dehydrating. By either method, however, the roots should be young and tender when taken; 95 per cent. of the carrots obtained in market or home grown are far too old to be of the best table quality. They are heavy yielders, easily grown, and keep excellently. The surplus from the summer crops may be made use of for dehydrating, and a late planting made for winter use. There are several different types of carrots which vary considerably in shape and length. Danver's Half Long is the standard for general purposes. New Amsterdam and Coreless are newer varieties which, while of moderate length, hold their shape well

to the end, so that they can be prepared with less waste and are of superior quality.

Cauliflower: By proper storing this may be kept well into the winter; it can also be saved by dehydrating although it turns rather dark. It is, of course, a favorite ingredient for mixed pickles of several kinds. The surplus of the spring-planted crop may be used for dehydrating, and a special late planting made for storing and the putting up of pickles in the fall. Dry Weather and Snowball or Best Early are the standard sure heading varieties.

Celery: This is universally grown as a fall and winter crop. Not everywhere, however, are there facilities for storing it in the ordinary way. Where space is lacking it can be kept very satisfactorily by dehydrating, for which purpose any surplus among the early plants may be utilized. The dwarf growing, easily blanched varieties, such as Golden Self-blanching, Winter Queen, Fordhook Emperor, and Easy Blanching, should be used.

Greens: This includes such vegetables as Swiss chard, kale, Chinese cabbage, beet tops, Marsh marigolds or "cowslips," and so forth. Any of these may be either canned or dehydrated. As this kind of vegetable is usually the most scarce, and the most lacking in the winter diet, it is a good plan to save such surpluses as there may be through the summer by dehydrating small quantities, which can be done readily, and to make late plantings of whatever sorts are liked the best for canning.

Leeks: While less economical to grow than onions, they can be kept by dehydrating the surplus of the summer crop. The regular garden crop saved in this way will answer for most families, as a little will go a long way.

Mushrooms: This delicate vegetable is easily kept by canning; and where they may be obtained growing wild in large quantities it makes one of the cheapest as well as one of the most delicious winter dishes. No one should attempt to put them up, however, who

has not had enough experience to be absolutely certain that only the non-poisonous kind are being used—better to go without them at all than to provide subject matter for an obituary in your local paper. Where mushrooms are home grown they may be had fresh in winter as well as in summer.

Okra: This may be either canned or dehydrated, or simply dried. In either case it will make a very agreeable flavoring for a change in the winter's soups and stews. The pods should be taken while quite small. It is easily grown, and one planting will probably furnish all that is wanted for winter in addition to that used for summer.

Onions: These are usually kept by storing, but as they are much more difficult to keep than most of the root crops, they are a good product for dehydrating if they can be obtained cheaply when the market is apt to be over-supplied in the fall, or where they can be grown in the home garden although there may be no facilities for storing them. Those for either storing or dehydrating will

be produced from the regular spring-sown crop. They are easily dried and lose little of their flavor in the process. The white varieties are easily grown but they are more difficult to harvest and to keep than the yellow and red sorts; the white varieties are the mildest in flavor. Dehydrating is therefore a very good way of keeping the tenderer and milder sorts. Onions are also used in many pickle mixtures or pickled by themselves.

Parsnips: This is one of the easiest vegetables of all to store for winter use, as they may merely be left in the ground. Part of the crop, however, should be taken up to be stored or dehydrated for use during mid-winter. To have parsnips of the best quality the seeds should not be planted nearly as early as is usually done.

Peas: These are easily either canned or dehydrated, provided enough of them can be got at one time in just the right condition. If surpluses from small plantings are depended on, there are likely to be many too old or too young. Special plantings should be made

for winter use. It is best to plant these to mature just before the coming of hot weather; then if the crop fails another chance may be taken by planting early in the autumn in time to mature the crop before frost. As extreme earliness is no particular advantage, a large-podded, fine-flavored variety should be grown. In the dwarf varieties there are British Wonder, Blue Bantam and Laxatonian; in the taller growing kinds, which need support of some kind, there are Gradus, Thomas Laxton, and Alderman. It takes more room and is more work to put up a given amount of peas than of many of the other garden products, but they keep readily and their delicious flavor makes it well worth while.

Peppers: These may be dried, dehydrated, or used in connection with other vegetables in various pickles and condiments. Surplus of the stock for summer and fall use may easily be saved and utilized, as they are easily handled in small quantities. For pickling and preserving, the pungent varieties, such

as Long Red Cayenne, or Tabasco, are used; for canning and drying, the milder, thick-fleshed sorts are preferable. Of these one of the best and earliest to mature is Neapolitan. The standard general-purpose pepper is Ruby King. Chinese Giant is the largest of all, but also the latest to mature, so, unless it can be planted early, use one of the others.

Potatoes: The white or Irish potatoes and sweet potatoes are grown more extensively for winter use than any other vegetable. They are, of course, kept ordinarily by storing, although the "sweets" are not stored so generally in the home, as they are much more difficult to keep than white potatoes. Both kinds, however, are easily dehydrated and keep excellently. Sweet potatoes especially are one of the best vegetables for dehydrating, and a considerable amount should be put up while the tubers can be purchased cheaply in the fall. While the yield of either Irish or sweet potatoes, where the conditions are favorable, is good, nevertheless they are

not crops which can be grown profitably, compared to most of the other root crops, in the home garden. If one can watch the market carefully in the fall or is able to buy direct from the grower, they can almost always be bought cheaper than they can be grown in a small way, unless one has ground available after planting all the other things which ordinarily are required in the home garden. Irish Cobbler for early and Green Mountain or Gold Coin for late, are the standard varieties of Irish potatoes and are all of excellent quality as well as good yielders. Sweet potatoes may be grown much farther north, as a home garden proposition, than they are grown commercially. I have matured good crops in northern Connecticut. An early variety such as Jersey Red should be used.

Pumpkin: This is another crop which is easily kept for winter either by storing or dehydrating. Table or sugar pumpkins are easily prepared for keeping and will keep well. In many home gardens where they are never grown they could be planted to advan-

tage rather late in the season, as they will make satisfactory growth among sweet corn, pole beans, tomatoes, or near the edge of the garden where they can run out over the grass or climb a fence. If one can get out into the country they can often be obtained for little or nothing from some farmer who has more than he wants for his own use.

Rhubarb: A generous amount of this very delicious and very prolific vegetable should be grown in every home garden. A few plants well cared for will give a sufficient supply for the average family for both summer and winter use. Rhubarb, because it will continue to live and throw up a few tough stalks with no care at all, is generally altogether neglected in the home garden, the yield being not over a fifth to a tenth of what it would be if properly attended to.

Salsify: "Oyster-plant," as it is generally known, is somewhat similar to parsnips though making a much smaller root; and like parsnips it is uninjured by freezing and may be kept in the ground over winter. Part of

the crop, however, should be taken up in the fall for winter use and saved either by storing or by dehydrating. While they yield less than parsnips they make a very agreeable change in the winter vegetable menu, and unless the garden space is very limited a supply should be grown by every one who expects to put up a complete assortment of vegetables for winter use.

Spinach: While what has been said in general in regard to "Greens" applies to spinach, it should be kept in mind that there are several types and the varieties for planting for winter use should be selected according to preference and to the season during which they will be grown. For spring sowing use All Seasons and Victoria; these are also good for early summer use. New Zealand, which is of a running habit of growth and gives a continuous yield through the hottest weather, is an entirely distinct type. For fall use, All Seasons and Victoria may be sown again.

Squash: Squash, like pumpkin, may be

saved for winter by storing, canning, or drying. It would be much more generally grown for summer use if it were commonly recognized that there are bush and small growing varieties which give a heavy yield of medium-sized fruits which will keep excellently for winter. One of these is Fordhook, which may be obtained either in the vine or the bush form. Another which makes a moderate length of vine, with the fruits set close together, is Delicata. Both of these have very hard thin rinds and will keep excellently; they are much earlier in maturing than the standard winter varieties; and can be sown among sweet corn or along the edge of a garden or near a fence, up to the middle of summer, and will yield a generous supply of first quality squashes for winter use, to be either stored or canned or dehydrated. Of the standard winter varieties, Delicious and Warted Hubbard are especially good.

Tomato: This is another vegetable that is among the very best for winter use. While there are likely to be surpluses from the reg-

ular crop, if many are to be put up it will be well to make a planting especially for this purpose. Tomatoes yield very heavily and if staked up and cared for are one of the most profitable vegetables for winter which can possibly be grown in the home garden. Being acid, they not only keep excellently themselves but serve as a preservative when put up with other things. They are easily prepared for canning and can be prepared for table in a great variety of ways for winter. While tomatoes cannot be stored over winter, nevertheless, if carefully put up they can be kept until Christmas or later to be used as fresh fruit. Try some this way. (See directions in Chapter VII.)

Many home gardeners make the mistake of trying to obtain the largest fruiting tomatoes which they can. The very largest fruiting sorts are not the heaviest yielders. Get a medium-sized variety of good dark red color, such as Chalk's Jewel, Bonny Best, Matchless, Stone, or Globe. The first two of these are considerably earlier and therefore

preferable for late planting, especially for canning. There are varieties with smooth, medium-sized fruit of excellent quality.

Turnip: This vegetable is one of the most valuable for winter use because of the tremendous yields it gives, its freedom from insects and disease, and the very short time required in which to mature a crop, so that it may be planted after most spring and summer vegetables and still have time to mature. Turnips are excellent winter keepers, and where there is storage room that is the simplest way to save the crop. They can, however, be either canned or dehydrated readily. The regular varieties of turnips grow so rapidly that special care must be taken to get them while they are still small and tender. Both for storing and for saving for winter use it is better to delay sowing until about mid-summer and then use a medium-sized variety of excellent table quality, such as Amber Globe, Purple Top, Strap Leaf, or White Egg.

Rutabagas are first cousin to the turnips

and largely grown for winter use. They take a little longer time to grow and must be planted earlier. While the large, coarse varieties are used mostly for stock, a fine-grained, tender sort, such as Bread Stone, or Golden Neckless, is as good as any turnip for table use.

FRUITS

In the nature of the case, home grown supplies of fruit cannot be as readily adjusted to the requirements of the winter table as can vegetables. If fruit is being set out, however, one's requirements for winter should be taken into consideration. The great majority of country places and even small suburban places could grow with profit several times the amount of fruit which they now produce. Most of the fruits are highly perishable and they may often be obtained in season very cheaply when there is an oversupply; especially if one has the means of getting out to the sources of production they can be had at prices which will make saving

them for winter a very profitable undertaking.

The hard fruits, such as apples, pears and quinces, may be stored for winter if perfect specimens of the suitable varieties are used. Varieties which will not keep, or specimens selected from good winter varieties which may have been bruised or become spotted, may be either canned or dehydrated by removing the injured part.

Soft fruits, such as apricots, cherries, figs, peaches, plums, are usually canned; but they make, of course, rather bulky products and if a generous supply of the fruit is available, more than can readily be canned, some of it should be saved by dehydrating. This will give a product equally good for many purposes, occupying very much less space, and not necessitating the use of glass containers to keep it.

Citrous fruits may be saved by canning, although some of them are more frequently kept in the forms of jam or marmalade.

Berries, including blackberries, blueber-

PLANTING TABLE FOR VEGETABLES FOR WINTER USE

Dates to Sow to Have Product in Good Condition, and Ready When Work Can Be Done Best

Vegetable	For Drying	For Canning	For Storing
Beans, bush	May 15–July 1	May 15–Aug. 1	(dry) May 5–June 15
Beans, Lima	May 15–June 15	May 15–June 15	May 15–June 15
Beans, pole	May 15–June 15	May 15–June 15	May 15–June 15
Beets	Apr. 15–June 1	Apr. 15–July 15	June 15–July 1
Brussels Spr.	Apr. 1–May 15	Apr. 1–June 15	June 1–July 1
Cabbage	Apr. 1–June 1	Apr. 1–June 15	June 15–Aug. 1
Carrot	Apr. 15–June 1	Apr. 15–July 1	June 1-15
Cauliflower	Apr. 10–June 1	Apr. 10–July 10	June 15–July 20
Celery	Apr. 15–May 15		May 15–July 15
Corn	May 1–June 15	May 1–July 1	
Greens: Chard.	Apr. 1–June 1	Apr. 1–July 1	
Spinach	Apr. 15–July 1-10	Apr. 15; July 1–Aug. 15	
Beets (small)	Apr. 15–June 1	Apr. 15–Aug. 1	
Mustard	Apr. 1–May 1–July 1-10	Apr. 1-15–July 1–Aug. 15	
Okra	June 1	June 1	
Onions	Apr. 1–May 15		Apr. 1-15
Parsnip	Apr. 1-15		May 15–June 1
Peas	Apr. 15–May 15	Apr. 15–June 1–July 15–Aug. 15	
Peppers	May 15–June 15	May 15–June 15	
Salsify	Apr. 1–May 15		May 15–June 1
Squash	May 15–June 15	May 15–July 15	May 15–July 1
Tomato	May 15–June 15	May 15–July 15	
Turnip	Apr. 1–May 15	June 15–Aug. 1	June 15–July 15

ries, huckleberries, raspberries, may all be used extensively for canning and to make various "preserves." Most of these are well adapted to saving by dehydrating and make an easily prepared and long-keeping product that is excellent for winter keeping.

CHAPTER IV

CANNING

The many methods used, and the many things to be handled in different ways, may make the art of canning seem at first a rather complicated one. Nevertheless, the general principles involved are always the same, no matter what is being canned, nor how, nor on what scale it is done. Once the general principles are understood, therefore, one has a key to the whole matter, and it becomes accordingly simplified and easy to understand.

The spoiling or decay of various fruits and vegetables is caused by the attack of one or more of three destructive agencies: bacteria, yeast, molds. Hot weather, or dry or moist air, which are often considered the causes of spoiling, are not direct causes. It is only as they make for conditions which are favorable or unfavorable to the growth of the or-

ganisms which do attack food products, that they may be considered a cause of spoiling. When vegetables or fruits decay or turn sour or ferment, it is not a simple physical change, but the result of the growth of certain living vegetable organisms, or to use the common phrase, "germs." The individual germ, of course, is too small to be seen without a microscope; but growing in the tissues of the vegetable or fruit they multiply with such rapidity that under favorable conditions they may cause it to change entirely, or decay or sour in a few hours.

As an illustration of how such changes are possible, take for instance the action of yeast; a cake of yeast is, in reality, nothing more nor less than a compact mass of millions and millions of germs which, under favorable conditions, soon permeate the whole mass of dough with which they are mixed. The action of "mother of vinegar" is another familiar example.

The germs which attack fruits and vegetables belong to three distinct classes, viz.,

An aluminum pressure cooker, and a gas range, make an ideal outfit for canning purposes. The former saves time and the latter work and heat.

bacteria, molds, and yeasts. Their development will cause vegetables and fruits to decay or mold, canned fruits or vegetables to sour or spoil, and jellies, preserves and pickles to mold. They are not, however, all alike in their tastes. The bacteria group thrive where there is little or no acid; the yeast and molds, on the other hand, thrive only where there is acid. Most fruits are acid and most vegetables are not; therefore, it is usually yeast or mold that causes the spoiling of fruits, and bacteria which causes the spoiling of vegetables. It is important to know this, because the yeast or molds can be killed at a much lower temperature than the bacteria.

HOW PRODUCTS ARE PRESERVED BY CANNING

There is one thing more which should be fully realized about these vegetable microorganisms which we have been considering, before we can plan intelligently just how to get the best of them. Notwithstanding their minute size and the incredible rapidity with

which they increase, each individual germ has to go through its complete life cycle, just as a plant does or a tree; each is a *living* organism. Each individual germ, no matter how many millions of them there may be in a single spoonful of vegetables or fruit, must sprout from a seed or "spore," grow, mature, and in its turn reproduce seed or spores from which the next generation springs. *It is absolutely impossible for any form of bacteria, yeast, or mold to develop spontaneously in any vegetable product.*

On the other hand, to make any vegetable product safe from their attacks it is necessary to destroy not only the growing organisms, but *all the seed or spores,* as well. Any one knows from common observation that Nature insures the continued existence of the various forms of plant life by protecting the germ in the seed—which carries the thread of life from one germination to the next—against conditions which would destroy the growing plant. You have seen come up in your garden in the spring, plants from seeds

of such tender things as melons and squash, which have remained uninjured in the ground over winter. In like manner the *seeds* or *spores* of bacteria, molds and yeast are much more difficult to destroy than the growing organisms themselves. Therefore, to make safe the products which we would keep for winter, it is necessary to be certain that the treatment given is sufficient to destroy the former as well as the latter.

As I have already stated, food products may be saved either by killing the germs present and making it impossible for others to get at the food, or by making the environment so unfavorable for the particular form of germ life to be dealt with that it could not develop sufficiently to cause any trouble. In canning of all kinds, the former method is utilized, the germs are destroyed by heat—or in more scientific terms, the product is "sterilized." In some instances this sterilization is also supplemented by a second method, i.e., by the use of "preservatives" which make conditions unfavorable for any

further development of bacteria or yeast or mold.

THE THEORY OF "CANNING"

Reduced to a single sentence, then, the whole theory of preserving food by canning is as follows. We (1) take the food or vegetable product to be preserved, in or upon which there are already present the germs which, if left to themselves, would soon destroy it; (2) place the product in a container and apply heat enough for a sufficiently long time to destroy completely the germs and germ spores which may be present; (3) seal it absolutely air-tight so that no more germs can gain access to the product. In some instances a preservative is used in addition to sterilization.

How can the point of actual sterilization be determined?

Coming to the practical side of the matter, that is naturally the first question which must be answered. There is no way of telling by watching the progress of the work while it is being done and no uniform rule

which will apply to everything. As a general rule, the less cooking or heating required to make the product safe, the better; for then the more nearly it will resemble in color and flavor the fresh product. There are, however, a few general principles which may be kept in mind and will serve to some extent as a basis on which to estimate the treatment which may be required by different vegetables or fruit. (For more specific information see the "Time Table" at the end of this chapter. It is based upon the result of actual practice.)

In the first place, the molds and yeasts—which, as we have seen, are more likely to attack fruit than vegetables—succumb at a comparatively low temperature—150 to 165 degrees F., which is considerably below the boiling-point of water (212 degrees F.). Many of the bacteria, however, which usually attack *vegetable* products, will withstand the boiling temperature for a long period; some of them over an hour. By the usual process, *employing heat alone,* therefore, the thorough

sterilizing of most vegetables is a long process. The acid vegetables, tomatoes and rhubarb, can be made safe for keeping in a comparatively short time, because they do not furnish a favorable environment for the development of bacteria. A temperature of 212 degrees can, of course, be obtained by keeping the containers in which the product is placed immersed in boiling water. To shorten the time required, however, a higher temperature may be obtained by using vessels in which the free escape of steam is prevented, or in which steam itself under pressure is used for supplying the heat. (See Chapter VIII, on equipment.)

NEW METHODS IN VEGETABLE CANNING

The thing which has done more to simplify the keeping of vegetables and fruits by canning—with the possible exception of the cold-pack method—is the use of a little acid (usually lemon juice) in the liquid or syrup in which the products are put up. Experiments at the California Experiment Station showed

that peas heated to the boiling-point (212 degrees F.) kept perfectly when five ounces of lemon juice to the gallon was added; while without the lemon juice, under the same conditions, they quickly spoiled. Corresponding results were obtained with beans, beets, asparagus, pumpkin and other vegetables which are considered very hard to keep. The amount of lemon juice is so small that in most cases, if noticeable at all, it improves the flavor.

Experiments with fruits established the fact that many varieties could be sterilized at a temperature considerably under that usually used (212 degrees F.). The object of this low temperature in sterilization is to keep the fruit as near the fresh form as possible, as cooking changes the flavor, texture and looks of the fruit. By carefully controlling the temperature, peaches, apricots, pears, cherries and berries were found to keep perfectly after being sterilized at 165 to 175 degrees F. and were only slightly altered in flavor and texture from the fresh

fruit. This seemed to be particularly true of the peaches.

THE COLD-PACK METHOD OF CANNING

While there are, in general, two methods of canning in use—the hot-pack and the cold-pack—the latter is so much better adapted under almost all conditions for home use, that for all practical purposes it may be said to have replaced the other. Some products, such as soups and "rations," are, because of their physical make-up, packed while hot, but this is only a matter of convenience.

Under the old or hot-pack method, the product to be preserved was heated until sterilized and then placed while hot in jars or cans and immediately sealed. By the new method, the materials are packed cold in the jars, covered with the syrup or liquor which is to go with them, heated until sterilized and immediately sealed. The advantage of the cold-pack method is, of course, obvious, in so far as convenience and quickness are con-

cerned. In addition to that, however, better results are obtained. Packing the products before sterilization instead of after, very greatly reduces the possibility of having the product re-infected with the bacteria or mold from the air, fingers, or other sources.

With the cold-pack method, either the one "period" or the intermittent or fractional process of sterilization may be used. In the former the product is put in and left until thoroughly sterilized at *one* heating, when it is sealed and finished. By the latter, which has already been mentioned, the product is heated two or three times, at intervals of twelve to twenty-four hours. The advantage of this is that the product may be thoroughly sterilized without using the high temperature necessary by the one-period method. If the sterilizing can be done when the fire in the home is being used for other things, on successive days, it may mean that but little extra work will be required. Ordinarily, however, the one-period method is the one most convenient and, therefore, most widely used.

EXPLANATION OF TERMS USED

Before taking up in detail the various steps to be followed, an understanding of the various terms used will help considerably in making clear the work that is to be done. Briefly, they are as follows:

Product: The vegetable or fruit, or combinations of either, to be saved for winter.

Preparing: Getting the product ready for canning. This may vary with the different products from merely washing to peeling, removing seeds or pits, cutting up into sections, or any other work that may be required before getting the product into the shape into which it will be wanted for keeping. One of the objections sometimes made to the economy of canning is the amount of work and time required for this work. It should be remembered, however, that for fresh vegetables or fruits bought at the store as they are wanted, this work will have to be done anyway, in getting them ready to cook. It

is really less work to do it in a wholesale way at the time of canning.

Containers: The cans, jars, crocks or other vessels in which the product is to be kept. There are a great variety of these, which are described more in detail in Chapter VIII, on equipment and accessories.

Blanching: "Scalding or blanching" consists in dipping the product into boiling water or placing it in live steam for a short period—one to fifty minutes. Where greens or green vegetables are to be put up, using steam gives the best result, as the volatile oils which they contain, and which would be lost by parboiling, are kept in the product. For blanching in hot water, the product is merely put in a piece of cheesecloth, left in the boiling water for the required length of time, and lifted out. For blanching in steam, the product may be put into a colander and placed over boiling water and covered as well as possible; but a steam cooker will be much more thorough and convenient.

Dipping or Cold-dipping: This consists in

plunging the product, for a moment, into cold water after removing it from the boiling water or steam in which it has blanched. The colder the water for this purpose the better.

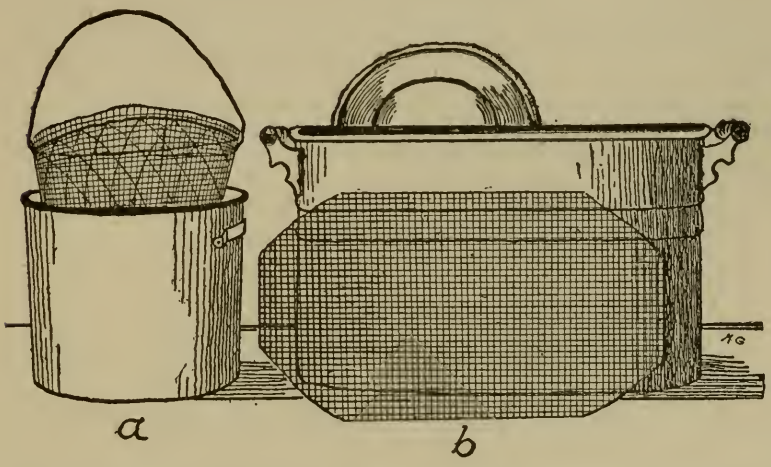
Packing: The product after being dipped is ready to be placed in the container in which it is to be kept. The product should have been cut or prepared in such a way as to fit most conveniently into the container, unless it is to be put up whole.

Syrup: Syrup is made usually of water and sugar for pouring over the fruit or vegetables after they have been packed, before sterilizing. It is usually designated as thin, medium, or heavy, according to the amount of sugar it contains. For directions for making and testing syrup see page 76.

Brine: With most vegetables, salt instead of sugar is used, generally only in small quantities—not much more than would be employed in cooking fresh vegetables. The too free use of salt very much injures the flavor of the product, and it should be applied only with care. For directions for making and

testing brine of various strength see page 77.

Processing: This is the application of heat which is counted on to destroy the germs and spores contained in the product, thus leaving it sterilized and ready to keep. The amount of heat and the time required will depend



A—Wire pail to set in pot or kettle. B—Wire false bottom to go in an ordinary wash-boiler to prevent jars from cracking. A wooden false bottom may be made of laths to use in place of the wire bottom.

upon the product and the apparatus to be used. The different kinds of equipment for processing will be found in Chapter VIII, on equipment.

Sealing: After sterilization, the containers, if crockery or glass, will have to be filled

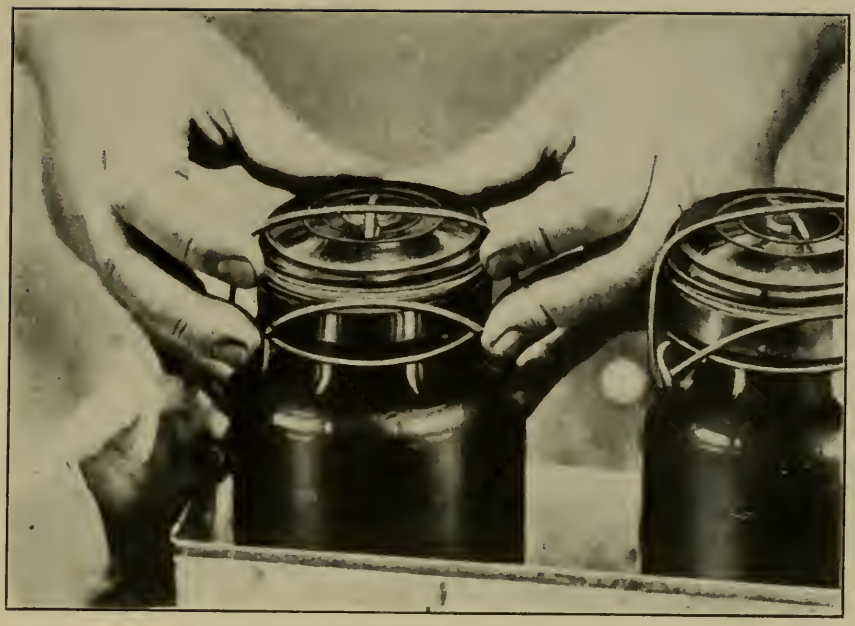
immediately, while the contents are still hot, to keep the contents sterile. Where cans are used, they are sealed *before* the processing.

Testing: Where glass containers are used after being filled, they are inverted and left to cool; they should be examined carefully for any sign of leakage and not stored until one is certain that all covers are absolutely air-tight.

Discoloration: Where glass containers are used the action of the sun or even of strong light will, with most products, gradually effect a bleaching out or discoloration. This is prevented either by storing the jars in an absolutely dark place, or wrapping each in newspaper or wrapping-paper to protect the contents from the light.

THE OPERATIONS IN CANNING

In canning there are three preliminary steps which should be attended to before the actual work is begun. First, have the product fresh, cleaned and sorted as to sizes and degrees of ripeness. Second, provide a suit-



Before processing, the tops of the jars are put in place, but *not* made tight.

The finished product is wrapped in paper before being stored away, to prevent its being bleached out by the light.

able place in which to do the work, a table of ample size, plenty of fresh water, suitable cooking apparatus with control of heat and so forth. (For further details of equipment see Chapter VIII.) Third, sterilize all kettles, pans, knives, dippers, containers and other utensils which will be used in preparing the fruit and putting it up after it is prepared.

In this connection, it is important to realize that where *rubber* is used it must be especially treated to avoid giving a disagreeable taste to the product: this often happens without the source of the trouble being recognized when the food is used. To be sure of avoiding danger from this source, all rubbers should be boiled slowly for several hours in an alkaline solution, formed by putting two or three tablespoonfuls of washing soda in a gallon of water. The rubbers should then be thoroughly rinsed and boiled a second time in water to which a little vinegar or lemon-juice has been added to make it slightly sour. This should be followed by a short boiling in

plain water. This may seem like a good deal of trouble, but as the work can be done well in advance of the canning it need, as a matter of fact, occupy very little time.

With everything in readiness proceed with the work as follows:

(1) Prepare the product for canning by cleaning, skinning, pitting, cutting or slicing into suitable size, etc.

(2) Bleach in steam or hot water for the required number of minutes.

(3) Cold-dip it for a moment, remove, and drain.

(4) Pack the product immediately into the containers to be used; these should be freshly sterilized and still hot. A convenient way of keeping glass jars ready for use, is to place them upside-down in a shallow pan of hot water, after they have been sterilized. This prevents the entrance of dust and keeps them warm without the trouble of having them completely immersed in hot water.

(5) Hot syrup or brine is then poured over the product, filling the containers full to the

Placing the product, after it is prepared, but still cold, in the jars. The empty jars are kept clean and hot by being inverted in hot water.

top. (Plain water is also used for this purpose.)

(6) The tops are then put in place. If cans are being used, they are sealed; if glass jars, the covers are fastened only tight enough to hold them securely in place, but not tight enough to prevent the escape of steam.

(7) The containers are then placed in a vessel for processing for the length of time required for the product being put up, and the type of process being used—hot-water bath, pressure cooker or steam cooker.

(8) *Immediately* upon being removed from processing, jars must be sealed tight. Test jars by placing them upside-down on a dry surface to cool. Watch carefully for leaks, and, if they occur, tighten the covers until the seal seems perfect. If leakage is discovered after a considerable time, it will be better to heat again to the sterilizing point before closing the covers.

(9) Cool jars by allowing them to stand; cool cans by immersing in cold water.

(10) Label *carefully,* showing preferably not only the name of the product but the date on which it was put up; and if it is being done for the first time, details as to the sterilization period used, the amount of sugar, salt or lemon juice used, and other particulars which may be wanted when the work is to be done again.

(11) Wrap the glass jars in paper to protect them from light unless they are going to be stored in a perfectly dark place.

(12) Store, if possible, where it is dark, and where the temperature will be as cool as may be obtained without danger of freezing.

DIRECTIONS FOR CANNING VEGETABLES

Artichoke: Use only the tender parts of very young heads; can whole in white jars or cut into vertical sections for cans. Bleach for five minutes, cover with 2 per cent. brine, process 10 to 20 minutes at 10 pounds pressure. If using glass jars, process 45 to 60 minutes at 212 degrees F., adding lemon juice,

After being processed or sterilized for the required length of time, the jars are removed and the covers *immediately* tightened.

¼ pint to the gallon, to the 2 per cent. brine.

Asparagus: Separate the stalks into three sizes; if there is much asparagus to put up, make a small box as long as the can or jar is deep, and open at one side and one end. The stalks can then be placed in the box, tip end in, and the butts cut off at just the right length by working a sharp knife against the open end of the box. Blanch the stalks from one to four minutes according to size, pack into jars or cans with tips up, cover with 2 per cent. brine, process cans for 15 minutes or jars 20 minutes at 10 pounds pressure. With lemon juice use 5 ounces to one gallon of brine; process 45 to 60 minutes at 212 degrees.

Beans: Green beans should be as young and tender as possible. Sort as to size, making three lots if any quantity is being put up at one time. Tip and string after grading. Break larger grades into pieces about an inch and a half long; the smaller beans may be canned whole. Blanch for 4 to 10 minutes according to size and type; cover

with 2 per cent. brine; process for 40 minutes at 10 pounds pressure. Process in jars or cans at 212 degrees for 2 hours; or, if using lemon-juice, ¼ pint to the gallon of brine, process 35 to 45 minutes.

Lima beans and shell beans, if a large enough quantity is being used, should be bleached and handled as above, except that in processing at 212 degrees, 3 hours instead of 2 will be required.

Beans and Corn, or Beans, Corn and Tomatoes: Use one part of corn to one of beans, or one part of corn, one of beans and three of tomatoes. Prepare beans as above. Blanch corn on the cob for 5 minutes, cold-dip and cut from cob. Blanch tomatoes 3 minutes or so, to loosen skin, and cold-dip; remove skins and cores, slice into medium-sized pieces. Mix corn and beans, or corn, beans and tomatoes thoroughly. Use glass jars or *enameled* tin cans; process for 45 to 50 minutes at 10 pounds pressure, or for 2 hours at 212 degrees.

Beets: For best results use very small

roots, not over 1 to 1½ inches in diameter. Scald to loosen jacket, fill in cold water, peel and pack whole or slice according to size of roots and containers. If using cans, only enamel lined should be employed. Prepare combination sugar and salt brine. 2 per cent. (or 2⅔ ounces per gallon) of sugar, and 2½ per cent. (or 3¼ ounces per gallon) of salt; bring to boil and fill cans or jars; process for 30 to 40 minutes at 8 pounds pressure, or 1½ hours at 212 degrees. Or add lemon juice—4 ounces to the gallon of brine—and process for one hour.

Brussels Sprouts: Remove stems and loosen outer leaves; make two grades for size if more than a jar or two are to be put up at a time. Blanch and process as directed for *Green Beans.*

Cabbage: Use only clean solid parts of fresh cabbage; remove outer leaves and core; slice only sufficiently to pack well and easily. Bleach five minutes or so; process as for *Green Beans.*

Carrots: Wash and scrape; blanch suffi-

ciently to loosen skin, or 4 or 5 minutes. Prepare brine of 2 per cent. salt and 3 per cent. sugar; or in place of brine make to taste with salt, sugar, butter and water; process as directed for *Beets.* Or add lemon juice—4 ounces per gallon of brine—and process for 1 hour.

Cauliflower: Use only firm clean heads; before canning, soak in cold brine—½ pound salt to 12 quarts of water—for an hour or so; remove from brine and blanch 3 minutes; remove stems and divide sufficiently to pack in containers; handle carefully; pack as tightly as possible without mashing; cover with 3 per cent. brine or fill with boiling water; add a teaspoonful of salt for each quart jar. Process for one hour at 212 degrees, or 20 minutes at 15 pounds of steam pressure. Or add lemon juice to brine, as for *Asparagus,* and process for 45 minutes.

Corn, Sweet: Corn has the reputation of causing a good deal of trouble in home canning. With care, however, it may be kept as successfully as other things. One of the im-

portant points is to select the ear at just the right state, as the kernels are passing from the milk to the dough state. It may be packed either hot or cold. By the former method, remove husks and soak carefully; cut the kernels off with a sharp knife and place in cooking kettles. Add a syrup of ½ pound of sugar and 1½ ounces of salt to a gallon of water. Add enough syrup to fairly cover the corn, and heat to boiling. Pack and sterilize cans while still hot. Process for 20 minutes at 15 pounds pressure.

By the cold-pack method, remove husks and soak for five minutes on cob; cold-dip; cut out kernels and pack directly in sterilized jars, leaving ¼ inch or so at the top to allow for expansion. It is best for two persons to work together, one to be packing the corn as fast as it is cut. If one is doing the work, a single jar at a time should be done, each jar as it is packed being placed in a hot water bath, at once adding 2 per cent. brine.

As corn is difficult to sterilize properly, it is best that the corn be processed at 212 de-

grees and that six ounces of lemon juice per gallon be added to the brine or syrup. If this is done, 1½ hours processing at 212 degrees is sufficient.

In canning on the cob, which is often desirable where ears of a small variety, such as Golden Bantam, can be grown in the home garden, follow the same process as above, packing only selected ears in wide jars or large cans, removing tips if necessary to get them of a uniform length.

Greens: Under this general head are included such vegetables as chard, kale, Chinese cabbage, cress, spinach, cabbage sprouts, beet tops, mustard, and such wild greens as milkweed, cowslips, etc. All of these things are gathered *when young and tender* and if put up properly make a valuable addition to the winter menu, when vegetables of this kind are especially scarce. One of the first essentials in getting good results with these things is to can them absolutely fresh, the day they are picked, and, if possible, within a few hours after cutting. Wash and rinse

them until thoroughly clean, and then pick over carefully, discarding old leaves and any tough stems or weeds. The blanching should be done in steam, for 10 to 15 minutes—the latter is not too much. Cold-dip and then cut into convenient length; pack as tightly as possible. Use medium brine or season with salt to taste. A few slips of boiled bacon or chipped beef may be added during the canning to improve the flavor; if olive oil is wanted with the greens, that also may be added at this time. Process as for *Beans.* Or add ¼ pint of lemon juice to the gallon of brine, and process as for *Green Beans.*

Mushrooms: First of all, be absolutely sure that you have fresh, edible mushrooms: remember that many lives are lost every year because people "think" they know mushrooms. Even when you are sure you have the right kind, they must be canned *immediately* after gathering. Wash and stem, removing loose skin. If they are small, they can be canned whole; if large they should be cut into sections. Blanch in boiling water

for 5 minutes; pack in glass or enamel cans; cover with 2 to 3 per cent. brine. Process at 212 degrees for 1½ hours, or at 15 pounds pressure for 30 minutes. Wrap jars to protect from light. When opening, remove from cans immediately and use as soon as possible.

Okra: Use young pods. Wash in cold water; blanch 20 minutes; slice across the pods; discard stem ends and tough pieces; cover with 3 per cent. brine, and process as for *Green Beans.*

Okra and Tomatoes: Wash, blanch and cut okra as above; place in an enamel kettle and mix with equal part of peeled and cored tomato. Bring to a boil and cook for 15 minutes; process for about half the time required for okra as above.

Parsnips: These are not usually canned, but they may be treated in the same way as *Carrots.*

Peas: The separation of peas by hand for canning requires so much labor in comparison to the machine methods used in commer-

cial establishments that there is not as much saving in the home canning of peas as with many other vegetables. It is possible to save any surplus which there may be, and often there is a good deal, and by careful work an extra-fine product may be obtained by home canning. Care must be exercised, however, to use only tender peas. Shell immediately after picking, and blanch five minutes or so—just enough to wrinkle the skin slightly; two minutes may be sufficient with small tender peas. Use a combination brine containing 2⅓ ounces of salt and 3½ ounces of sugar to the gallon; process for 25 to 30 minutes at 10 pounds pressure. Where hot water only is available for processing, add to the brine as above 7 ounces of lemon juice per gallon and process for 45 minutes to 1 hour.

Peppers: While these may be canned with the skins on for home use, the skin may be separated from the meat easily by baking in a hot open oven until the skin separates; or by blanching for 3 minutes or so in boiling water to which soda-lye has been added—at

the rate of 3 ounces per gallon—and chilled by dipping immediately into very cold water. For canning without peeling, remove stems and seed cores and dip in boiling water a few minutes to soften the meat so that they can be folded and packed into the jars tightly; cover with boiling water or 2 per cent. brine.

Potatoes, Sweet: As sweet potatoes do not keep readily, and can often be bought rather cheaply in the fall, it is then profitable to can them. Place in boiling water long enough to soften the skin; dip in cold water; peel; pack whole or in slices; cover with light brine.

Pumpkin: Pumpkin may be saved readily; as it is in demand throughout the year as a vegetable and for the making of pies, it is a good vegetable to put up. Use only the small "sugar" pumpkin. Clean; cut into sections, and place in boiling water until soft; scrape off flesh and pulp through a colander; and heat again to boiling temperature, preferably in a double-boiler to avoid possibility of scorching; pack while hot, filling the jars

not quite full. Process for 1 hour at 10 pounds pressure.

Second method: Clean the pumpkins; cut the flesh up into cubes; and pack cold into containers; cover with hot combination brine containing 2⅔ ounces of salt and 4 ounces of lemon juice for a gallon. So prepared, the pumpkin will need a little further cooking when wanted for use, but will keep well and have good flavor and appearance.

Rhubarb: This is one of the easiest of all vegetables to prepare and keep by canning. Naturally very acid, it resists the action of bacteria. The stalks, after being washed, may be cut into short sections of an inch or an inch and a half in length, or in pieces that will just go into the container, to be packed like asparagus. Jars or enamel cans should be sterilized before being packed. Fill with water and process for 10 minutes at 10 pounds pressure, or 30 minutes at 212 degrees.

Salsify or *Vegetable Oyster:* Same process as for *Carrots.*

Sauerkraut: Blanch three minutes; pack solidly in jars or cans; add brine and process as for *Green Beans.*

Squash: Prepare the same as *Pumpkin.*

Succotash: See under *Beans.*

Tomatoes: Tomatoes are more important than any other vegetable for keeping for winter by canning. Select only solid, smooth fruit, preferably of a deep color. Pick out the smallest, most uniform in size, for canning whole. Grade for ripeness, and discard any showing the slightest sign of decay, and also those not fully ripe—the latter may be kept for a day or two and will quickly ripen up. Immerse in boiling water just long enough to loosen the skin—½ to 1 minute; dip in cold water and peel; remove the cores and stem ends or other hard spots, saving the juice; place in juice and bring to boil; pack hot without the addition of water; or slice or put in whole by cold-pack method in sterilized jars or enamel cans. In packing whole, cover with juice from cutting or

squeezed from some fresh tomatoes; add a teaspoonful of salt to each quart can or jar. Process for 25 minutes at 212 degrees, or for 10 minutes at 10 pounds pressure.

Turnip: Wash and pare small turnips; cut into cubes; bring to a boil in plain water for about 30 minutes and pass through colander; add salt and white pepper to taste; and pack hot. Process for 20 minutes at 15 pounds pressure.

To put up by cold-pack method, prepare and process as for *Carrots.*

Turnip-tops: See under *Greens.*

DIRECTIONS FOR SPECIAL VARIETIES OF FRUIT

Apples: Tart varieties are the best for canning. All bruised spots, if any, should be removed. The skins and cores will make about one-third of the apple. If a considerable number are being put up, this should not be wasted but used for making some other fruit products—one of the jellies or preserves described in Chapter VI. The apples, after

being peeled, should be cut into quarters or eighths. If a paring and coring machine is being used, remove the slicing blade. The perfect quarters may be put up by themselves and the broken pieces or small parts kept separate.

The fruit may be packed into sterilized containers, after being prepared, but it is best to put the pieces thus prepared into a cold, slightly salt, dip first.

Pears: The fruit selected should be of good size, even shape, and fully ripe, but not soft. The Bartlett is a suitable variety for canning and is one of the best. Peel and core carefully, and, if there is very much difference in size, grade. To prevent peeled fruits from turning brown, place in water as soon as peeled, until ready to be packed in containers. Pack carefully, fill with hot syrup, and seal tin cans or loosely cover glass jars. Process, according to time shown in table.

Peaches: Only thoroughly ripe fruit should be used, if the best quality is wanted.

If a considerable number are to be put up, it will be worth while to get a special peach-peeling knife and a peach-pitting spoon—one which can be used to cut the pit out of clingstone varieties *before* the fruit is cut in half. Either a forty or sixty per cent. syrup may be used to cover the fruit in the jars, but the latter is better for a high quality product. Small pieces, or less desirable varieties, may be covered with a lower grade syrup, or even with plain water if the product is to be used for making pies and so forth. The clingstone varieties are of a much firmer texture than the freestones, and, for that reason require a little longer period of processing. Whereas twenty-five minutes is sufficient for the freestones, the clings should be given about thirty —hot water bath time. The fruits vary greatly, however, and they cannot be successfully sterilized by rule-of-thumb. Make a careful examination of the product in the first few cans heated, to see if the texture desired has been obtained.

Cherries: Cherries may be canned either with or without pitting; some people like the bitter almond flavor which results if the pits are left in. A machine for pitting can be obtained at a low price at any hardware store. Wash thoroughly in cold water to get the fruit perfectly clean. If a pitting machine is used, the flesh will be more or less bruised and should be canned *immediately,* in enameled lined cans; cover with a forty per cent. syrup, *cold.* Cover jars or seal cans; and, if cans are used, exhaust for 15 minutes in 150 degrees F. water. Then seal and sterilize, or steam at 212 degrees for 20 minutes. If using glass jars, sterilize at 212 degrees for 35 minutes.

Plums: Carefully wash and grade the fruit. Fill jars or cans (only enameled lined, as plain tin is not safe) and cover with *hot* 40 or 50 per cent. syrup. Cover, and sterilize at 212 degrees for 8 to 10 minutes, depending upon the firmness of the fruit. Sterilize the jars for 30 minutes in water.

Soft Fruits and Berries.—Including Blackberries, Raspberries, Dewberries, Gooseberries, Grapes, Huckleberries and Strawberries

Prepare fruit carefully, and rinse off with cold water. Remove from strainer or colander with ladle and pack carefully in sterilized jars, or cans. Add hot syrup, at once. Cover each jar or completely seal each can as it is filled. (Only enameled cans should be employed for highly acid products.) After sterilizing, as per time table, wrap each jar carefully before storing, to prevent bleaching.

Cranberries and gooseberries may be put up without the use of syrup, in glass, or in enameled cans. After preparing and packing, cover with boiled water and sterilize at 212 degrees F. for 25 minutes.

Strawberries: To prepare an extra good quality, in canning, use glass, or enameled cans; grade the berries carefully; and wash and place in kettle with an equal volume of

sugar. Cook down very slowly until the syrup will test 30 degrees Baumé. Drain off surplus syrup and fill into hot containers; cover and sterilize cans for 5 minutes at 212 degrees, and jars for 10. If strawberries are sterilized without previous cooking in the containers, they will shrink very badly.

Fruit Juices: A product which is very often wasted is the juice of small quantities of fruit that cannot be used advantageously for canning, or from the imperfect fruits and overripe fruits taken out when canning or drying.

Press out the juice, drain, and heat in agate-proof kettles to 110 degrees. Pour into sterilized jars, or bottles. If using jars, follow directions given for the various fruits. If using bottles, cover up first with cotton stoppers, pressed well into the necks, and sterilize in boiling water up to the neck for 40 minutes at 165 degrees. Remove and press corks into place immediately, and dip the cork into paraffin or wax to seal securely.

DIRECTIONS FOR MAKING SYRUP

A syrup of any desired strength or density may be obtained by carefully measuring the sugar and water. The following table shows the per cent. of sugar, the reading by a Baumé tester, and the proportion of sugar and water. The Baumé tester is a hydrometer which shows the density of any liquid in which it is floated. The Brix and the Balling testers work on the same principle, but have scales which show the *per cent.* of sugar in the liquid, instead of the density.

SUGAR SYRUPS

Per cent. of sugar (Brix or Balling)	Baumé Degrees	Weight of sugar Per 1 gal. of Water
5	2.8	0 lbs. 7 oz.
10	5.5	0 15
15	8.3	1 8
20	11.1	2 2
25	13.8	2 13
30	16.5	3 10
35	19.2	4 7
40	21.9	5 10
45	24.6	6 14
50	27.2	8 6
55	29.8	10 4
60	32.4	12 10
65	34.9	15 11

TIME TABLE FOR VEGETABLE AND FRUIT CANNING

Vegetable	Processing*				
	Blanching	Hot-water	Water seal	Steam pressure	Pressure cooker
Asparagus	15	180	90	60	40
Beans, wax	5 to 10	180	90	60	40
Beans, stringless	5 to 10	180	90	60	40
Beans, Lima	5 to 10	180	120	60	40
Beets	5	90	80	60	40
Brussels Sprouts	5 to 10	120	90	60	40
Cabbage	5 to 10	120	90	60	40
Carrots	5	120	80	60	40
Cauliflower	3	180	40	30	20
Corn, sweet	5	240	120	90	60
Dandelion	15	120	90	60	40
Egg plant	5 to 10	120	90	60	40
Endive	15	120	90	60	40
Greens	15	120	90	60	40
Hominy	3	120	90	60	40
Mushrooms	5	90	80	50	30
Mustard	5 to 10	120	90	60	40
Okra	5 to 10	120	90	60	40
Onions	5 to 10	180	120	60	40
Parsnips	5	90	80	60	40
Peas	5 to 10	180	120	60	40
Peppers (green)	5 to 10	180	90	60	40
Peppers (sweet)	5 to 10	120	90	60	40
Pumpkin	3	120	90	60	40
Salsify	5	90	80	60	40
Sauerkraut	3	120	90	60	40
Spinach	15	120	90	60	40
Squash	3	129	90	60	40
Sweet Potatoes	5	90	80	60	40
Tomatoes	1½	45	18	15	10
Turnips	5	90	80	60	40
Turnip tops (young, tender)	15	120	90	60	40
Vegetable combination	5 to 10	180	120	60	45

TIME TABLE FOR VEGETABLE AND FRUIT CANNING—(*Cont'd.*)

Vegetable	Processing*				
	Blanching	Hot-water	Water seal	Steam pressure	Pressure cooker
Cream of Tomato Soup	.....	30	20	18	10
Vegetable Soup and all Soup Combination	.....	180	75	60	45
Fruits					
Apples	1½	20	12	8	6
Apricots	1 to 2	16	12	10	5
Blackberries	.....	16	12	10	5
Blueberries	.....	16	12	10	5
Cherries	.....	16	12	10	5
Currants	.....	16	12	10	5
Dewberries	.....	16	12	10	5
Figs	1 to 2	16	12	10	5
Gooseberries	1 to 2	16	12	10	5
Grapes	.....	16	12	10	5
Huckleberries	.....	16	12	10	5
Peaches	1 to 2	16	12	10	5
Pears	1½	20	12	8	6
Plums	.....	16	12	10	5
Quinces	1½	20	12	8	6
Preserves, after preparation and filling	.....	20	15	10	..
Raspberries	.....	16	12	10	5

Notes

Time for Different Altitudes. This time table is based upon the one-quart pack and upon fresh products at altitudes up to 1000 feet. For higher altitudes increase the time 10 per cent. for each additional 500 feet.

For example: Sterilize tomatoes in wash boiler 45 minutes up to 1000 feet elevation; 10% longer or 50 minutes, between 1000 and 1500 feet elevation; 10% longer or 55 minutes, between 1500 and 2000 feet elevation, etc.

* Proper Steam Pressure. When processing fruits in steam-pressure canners, not over 5 pounds of steam pressure should be used. When processing vegetables, do not use over 15 pounds of pressure.

Shrinkage During Sterilization. Shrinkage may occur during sterilization because of improper and insufficient blanching and cold-dipping, careless packing, poor grading, sterilizing for too long a period, or lack of judgment in the amount and size of product put into the container. This will have no effect on the keeping of the product if thoroughly sterilized and the jar sealed.

DIRECTIONS FOR MAKING BRINE

As brines are used, with or without sugar, in the majority of products canned, the making of a brine of a suitable strength is quite an important item. The number of ounces of salt which should be added to a gallon of plain water to get a brine of any desired strength is shown in the following table.

BRINES

Per cent. of salt in brine	Ounces of salt per gal. of water
1	1⅓
2	2⅔
3	4
4	5⅓
5	6⅔
10	14¼
15	22⅔

CHAPTER V

DRYING AND DEHYDRATING

As we have already seen, in considering the saving of food for winter by drying, the moisture content is lowered and the sugar content raised to a point where bacteria, yeast and mold find a condition or environment in which they cannot thrive sufficiently to cause the food to spoil.

The first problem in the *practice* of food drying, therefore, is to determine what is the best method to get rid of the surplus moisture which is to be extracted from the food product to be saved. The first method coming to mind, probably, would be to put it in the oven and dry it to a crisp. Experiments have shown, however, that in the drying of food products to save them, two things must be guarded against: first, if they are made too dry, the cell-structure is altered and they

cannot be brought back to their original condition when wanted for use. Second, if the water is extracted by heating them too suddenly, or at too high a temperature, the flavor of the food will be altered.

What should be aimed at, then, is a method which will extract just sufficient of the water from the product to make it keep perfectly and to do this with as little change as possible in the product itself: that is, injuring the product as little as possible physically and keeping it at as low a temperature as possible to avoid scorching, charring, or even cooking it. These facts should always be kept in mind in preparing foods for keeping for winter by drying.

Few persons have any conception of the amount of water which the average fruit or vegetable contains. If all of the water should be suddenly extracted from a potato or apple which you held in your hand, there would be nothing left but a small hard sphere about the size and weight of a large marble, or a

"skeleton" potato or apple about as heavy as a puff-ball.

The drying of fruits and vegetables was formerly done quite extensively as a method of saving food for winter in the home; this disappeared to a large extent with the advent of canning, because the methods of drying then in use were available only for a limited number of things and did not give a uniform product. This, however, was due to the methods used and not to the practice of drying vegetables. In Europe, even before the war, vegetables were saved by drying on a much larger scale than in this country. Without doubt one of the secrets of Germany's being able to maintain herself against starvation, notwithstanding that she did not have access to the outside world in obtaining food for her millions of population, was the fact that the surplus of vegetables, and especially of the tremendous crops of potatoes, had been dried and stored for future use for years. Since the war, an important part of the food conservation program in every European coun-

try has been the drying of summer surpluses of fruits and vegetables for winter use. The importance of this method has been so fully realized by the various governments that they have taken it under their direct control, building enormous municipal drying plants and establishing community dryers where they would be of the most use, and even sending portable drying outfits from one farm to another to save all the available surpluses. Immense contracts have been given concerns in the United States and in Canada to supply dehydrated vegetables for the use of the civil population and of the armies in Europe.

It is not merely as a war measure that the form of saving food for winter by drying will be of importance. Without doubt within the next few years the drying of many vegetables will assume almost as much importance, both commercially and in the home, as "canned goods" now do. With some vegetables, and especially where there is plenty of room and suitable conditions for storing, it is not supposed that drying will take the

A home-made drier such as shown above, swung over the stove will save many pounds and quarts of vegetables and fruits that would otherwise go to waste. All the work of preparing products for drying can be done in a cool place, and at odd moments.

place of canning and of winter storing; but there is hardly a home where it cannot be used to advantage for some things. Dried products require very much less expense for containers, such as glass jars, cans, etc., than canned products, and they require very much less room for their storage. The dry products can be kept in wax paper and other containers that could not be used for canned goods. They can be exposed to freezing without the danger of breakage and loss. Another point of great importance to the family which, as many do, spends the summer in the country is that the dry products can be put up during the summer or in vacation weeks and easily taken back to the city; whereas canned products involve great risks and expense in transportation, even if there is a place to store them after they are brought back to the city.

While all these things make a difference to the woman living in the country, they are of still greater importance to the city housekeeper. With her, usually, storage room is

at a great premium, and often kitchen space also is cramped. The effort necessary to put up any amount of canned products causes her to depend almost wholly upon the store for her winter vegetables, either fresh or canned. The city housewife, on the other hand, usually has the best of facilities for drying products by modern methods. In most homes electricity is available and without that the gas range, with its easy and accurate control of heat, makes drying a comparatively simple matter. Even though only small quantities be dried at a time, the total at the end of the season will be a very considerable amount of food stored for winter use.

THE VARIOUS METHODS OF DRYING AND EXPLANATION OF TERMS USED

While the *drying* of vegetables is a general term which applies to this method of keeping food products, regardless of the details of how the work is done, the newer terms of *evaporation* and *dehydrating* have come into

use, and through common usage have come to express or stand for different methods of drying. In the following pages they are employed with more specific meanings, as follows:

Drying: This refers to the practice of *sun drying,* or drying by exposure to the sun.

Evaporating: This refers to the method of drying by *artificial heat.*

Dehydrating: This refers to the method of removing the surplus moisture by *artificial air-blast.* The third term, however, often includes the second, as drying by a blast or current of air is more rapid where the air is heated. The air, however, is the chief agency in removing the moisture and the temperature used is usually much less than that where evaporation alone is done, as the air-current method naturally tends to keep the temperature down.

Dehydrating, or the new method of drying, has, like the newer methods in canning vegetables, brought the introduction of some newer terms which are not as yet universally

known to the housewife. Some of these are as follows:

Preparing: Getting the vegetables ready for drying by carefully sorting; discarding all that are old and tough or injured, carefully washing or scrubbing, etc.

Blanching: Many vegetables and fruits need this preliminary treatment for drying or dehydrating as well as for canning.

Dipping: Plunging into cold water after blanching, to start the skins or fix the color and flavor.

Slicing: This is a very important part of fixing vegetables by the drying method. They must be cut into thin pieces or small parts to dry out evenly. Were the attempt made to dry them in large sections, they would merely wilt or shrivel on the surface, while the interior would be little changed; in fact, one of the chief reasons for the existence of the skin on most fruits and vegetables is to *prevent* evaporation. The vegetables should be sliced thin enough, but not too thin—⅛ to ¼ of an inch is about right. This will be thin

The first step in preparing the product is to put it, after cleaning and cutting, in cheesecloth (or a wire basket) for "blanching."

It is then dipped into boiling water for the required time to blanch it.

enough to expose a large amount of surface to the air to dry, without giving a product that cannot be handled without sticking together and being in general "messy." When sliced too thin or cut into too small pieces the product is likely to lose its flavor and also fail to "come back" when re-soaked for use, so that it can be used to advantage in cooking.

Cutting and Shredding: Vegetables which are not suitable for slicing are prepared by cutting into small cubes, or in some cases are cut into fine shreds. Vegetables which have to be partly cooked before drying, or in some cases, prepared by "pulping," or passing them through the meat grinder, to prepare them for drying.

Drying: Drying out the prepared product in the apparatus which has been prepared to utilize either sun heat, artificial heat, or air-blast.

Conditioning: After the product has been dried to as nearly the condition wanted as possible, it will be found in most cases that the degree of dryness obtained will not be ab-

solutely uniform throughout the batch. To make certain that all parts are dry enough, and to make the degree of moisture as uniform as possible it is "conditioned" by keeping the product in shallow open boxes for a few days, and occasionally turning it over or changing it from one tray to another. If the product is found to be not sufficiently dried out, as is sometimes the case, it is returned to the drier for further treatment.

Containers: Containers in which the finished dried product is to be stored and kept for future use may be glass jars, crocks, or specially prepared paper, or in fact anything which is convenient or may be covered tight enough to prevent any insects or worms from getting into the product. These containers do not have to be, as in canning, absolutely air-tight.

Success in drying, evaporating, or dehydrating vegetables or fruit will depend to a very great extent on having apparatus which is adapted to the work that is to be done. This does not mean that it is necessary to invest a

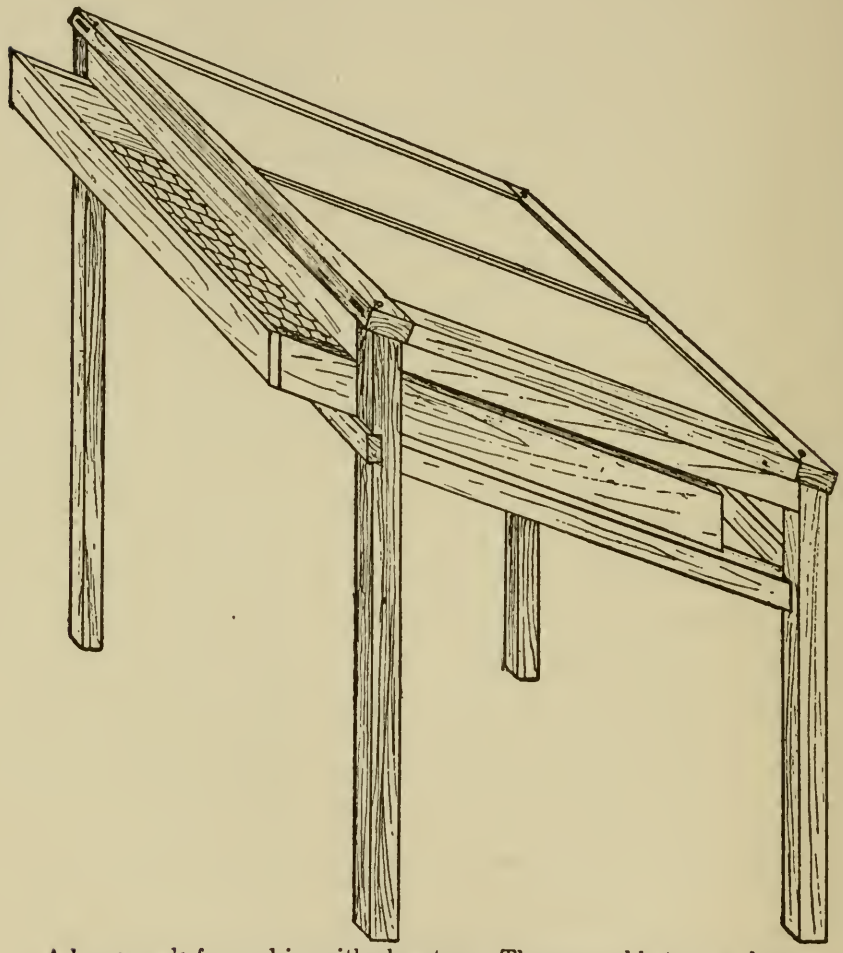
After being blanched, the product is immediately "dipped" in cold water.

A false bottom of wood (or of wire) placed in an ordinary wash boiler makes a good outfit for "processing" a limited number of jars or cans in the home kitchen.

considerable amount in equipment before drying can be undertaken. There are now manufactured for home and community use a number of machines of various sizes that cover a wide range of prices. Many of these are not very expensive and are very convenient to use, and efficient. It is entirely feasible, however, to construct an apparatus, if one is at all handy with tools, that will answer for home purposes. Herewith are illustrated three types of driers of home-made construction. The first of these is suitable for the sun-drying process of fruits or vegetables; the second, for evaporation by artificial heat; and the third for dehydrating by air-current. These show plainly the principles on which the work is accomplished. Other machines are illustrated and described in the chapter on equipment.

Drying in the Sun: Except where the climate is such that long periods of hot dry weather without rain or heavy dews may be counted upon, sun drying is uncertain unless some means is taken to provide protection

from occasional showers and also from blowing dust, insects, etc. A contrivance of this

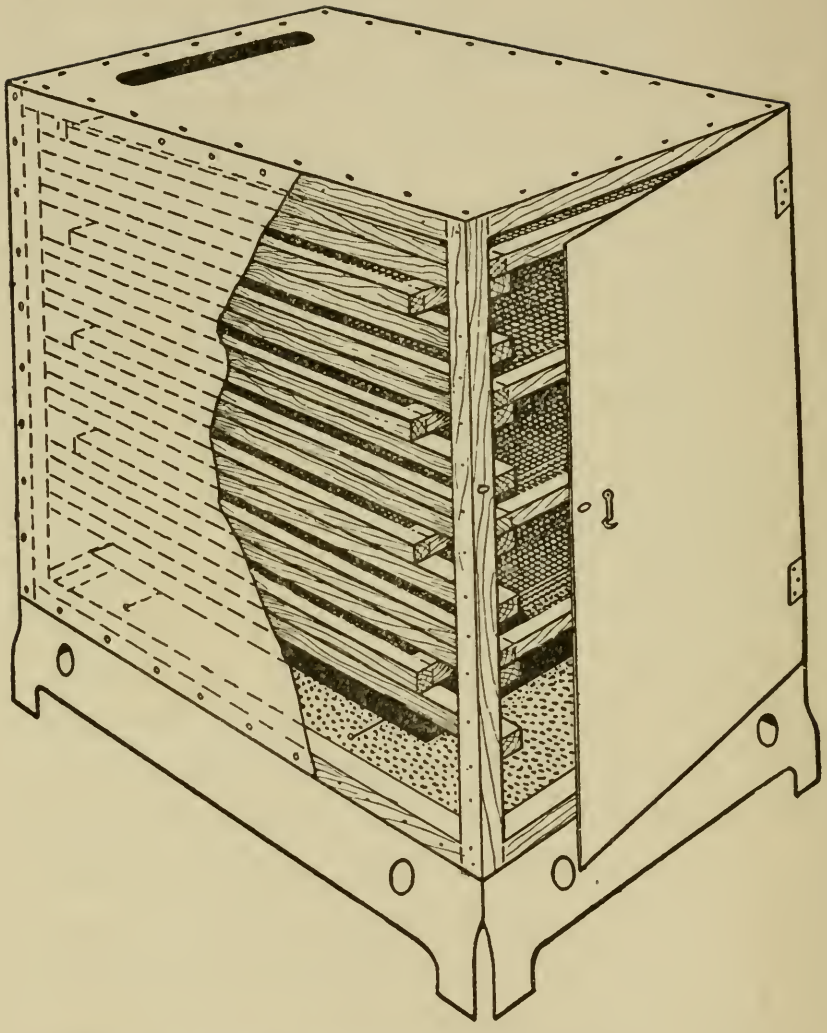


A home-made frame drier with glass top. The removable tray or drawer has a fine mesh wire bottom.

kind is shown in the illustration. This shows a frame covered with a "Baby" or "Junior"

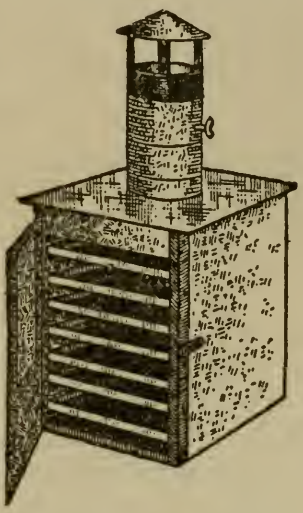
sash, such as are used in many home gardens. A larger-sized drier can be made to accommodate a standard cold-frame sash; or if one has a suitable place for doing the work the products may be simply spread in the bright sunshine under cover, on pieces of muslin or paper. Drying may be done in *trays alone,* of convenient size for the product to be handled, but this process will necessitate much more careful watching, covering up, etc.

Evaporation by Heat: The heat of the cook stove can be used—often in connection with cooking—so that no additional expense is necessary for fuel, for evaporating. The simplest equipment for this work is the use of large plates or pans in the oven, with the door open, or at the back of the stove. These, however, are inconvenient and risky. It will be better either to get a commercial drier or to make one at home similar to that illustrated. This is merely a box on metal legs, containing a number of light trays, which may be set upon the stove, the heated air



A home-made stove drier with removable wire tray or rack. Outside is covered with metal.

passing up through the trays and around the product. There are many other inexpensive driers on the market for use over coal or gas stoves; the smaller sizes may be bought for a few dollars each. Before attempting to make a home-made drier, one should be satisfied that he cannot find among these something which would serve the purpose better than a home-made affair, at little or no more cost, all things considered.



A convenient type of small stove drier.

Dehydrating by Air-current: For this purpose, in the home an electric fan is usually made use of. This has proved very efficient, provided suitable trays for keeping the products separated, so that the air-current will pass through them most effectually, are arranged. The effectiveness of the fan method of drying as compared to hot air over the stove will be surprising to those

who try it for the first time. The cost of running the fan in many instances will be but eight to ten cents a day. Many things can be dried sufficiently within a few hours. The arrangement of the fan and trays is shown in the accompanying illustration. The fan where used is likely to prove more satisfactory than heat drying, the color and flavor being better preserved, and the product more uniformly made.

THE PROCESS OF DRYING

(1) Obtain the products, as for canning, as *fresh,* young and tender as possible. Pick over and grade carefully; wash all products that may need it and thoroughly clean and peel or scape root products to avoid possibility of strong acid flavor in the dry products.

(2) Slice, cut, shred or "pulp" the product, as may be required.

(3) Blanch, or par-boil and cold-dip, as required, and place in trays ready for drying.

(4) Dry carefully for the required length

Slicing or cutting the product to be dehydrated is a vital part of the process. A rotary slicing machine like this, which is being used to cut sweet potatoes into strips, is a great time saver.

An electric fan and home-made wooden trays complete this simple but effective "dehydrating plant," in which several products may be dried quickly at one time.

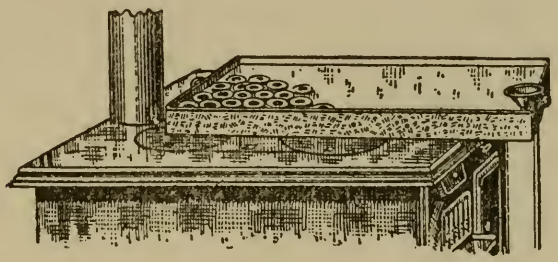
of time—examinations should be frequent and occasional turning may be necessary. Be sure to keep sun-dried products carefully protected at all time from dust or moths. The product should be taken in each night before sunset and put out each morning after the dew is off. There should be a protecting cover of light cheese-cloth—mosquito netting is not fine enough—which should be kept over the product to prevent moths or other insects from depositing their eggs, with the result that a large part or all of the product may be spoiled afterward while in storage. The "Indian meal moth," which is about ⅜ of an inch in length and is gray and copper-brown in color, is the insect which causes most injury to dry vegetables and fruits. A close second is the "fake moth," about the same size, but a darker gray. Both are night flyers and are likely to attack the product about dusk. The eggs hatch within ten days, with a new generation about every two months thereafter; so that just from a few

eggs originally the whole product may be completely spoiled.

In evaporating by heat, care should be taken to avoid too high a temperature at first, as this may cause the freshly cut surfaces to be sealed up, with the results that the pieces do not dry out evenly and a poor product results. Start the heat slowly and raise it gradually to 140 to 150 degrees. This is high enough to do the drying as rapidly as it should be done, and will also destroy any insect eggs which may be present. To keep track of the degree of heat in the drier a thermometer, preferably an oven thermometer, should be used. If you do the work without a thermometer, it is risky, as the temperature varies rapidly and scorching may be the result.

When dehydrating by air-current, for reasons already explained, a high temperature in the drying of vegetables or fruit is objectionable. They will not dry, even if a correspondingly longer time be given them, without a fairly rapid movement of the air about

them. This is because the moisture evaporating from the freshly cut surfaces soon saturates the air, which acts like a blanket and checks the evaporation. The result is that the right conditions for the growth of molds are created, and the product is soon spoiled. If, however, the moisture-saturated air is re-



A small open pan evaporator of the double-boiler type. The water in the bottom pan prevents scorching the product and makes more uniform drying possible.

moved—by having a current of air blown over the vegetable—as fast as it is saturated, evaporation will continue at a rapid and steady rate until the product is uniformly and sufficiently dry. With large commercial evaporators, great care has to be taken not to take out too much of the moisture; but there is little danger of this with the home air-blast equipment. The layer of products should not

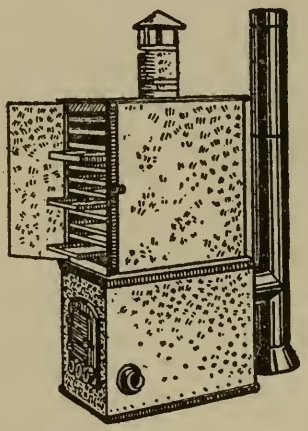
be so thick that they will not dry through evenly, and, if necessary, should be stirred up or turned over occasionally.

(5) Remove from drier. Experience only, in this as in many other things, will teach the operator just when the right condition or degree of dryness has been obtained. In commercial dehydrating, from seven to twelve per cent. of the water content is allowed to remain in the product. There is no way of determining this in the home drier; but one of the tests, to show when this condition has been reached, is to snap one of the pieces and see if it is impossible to press any of the juice from the freshly cut end. The natural "grain" of the vegetable or fruit should also have disappeared; but it should not be so dry as to be absolutely brittle; it should be, rather, slightly leathery.

(6) It is necessary also, to get a product that will keep well and that will not mold, to have it dried uniformly through and through. When the product has been dried sufficiently, as nearly as can be judged, "con-

dition'' it for a day or two, if necessary re-drying all parts that appear to be still too moist.

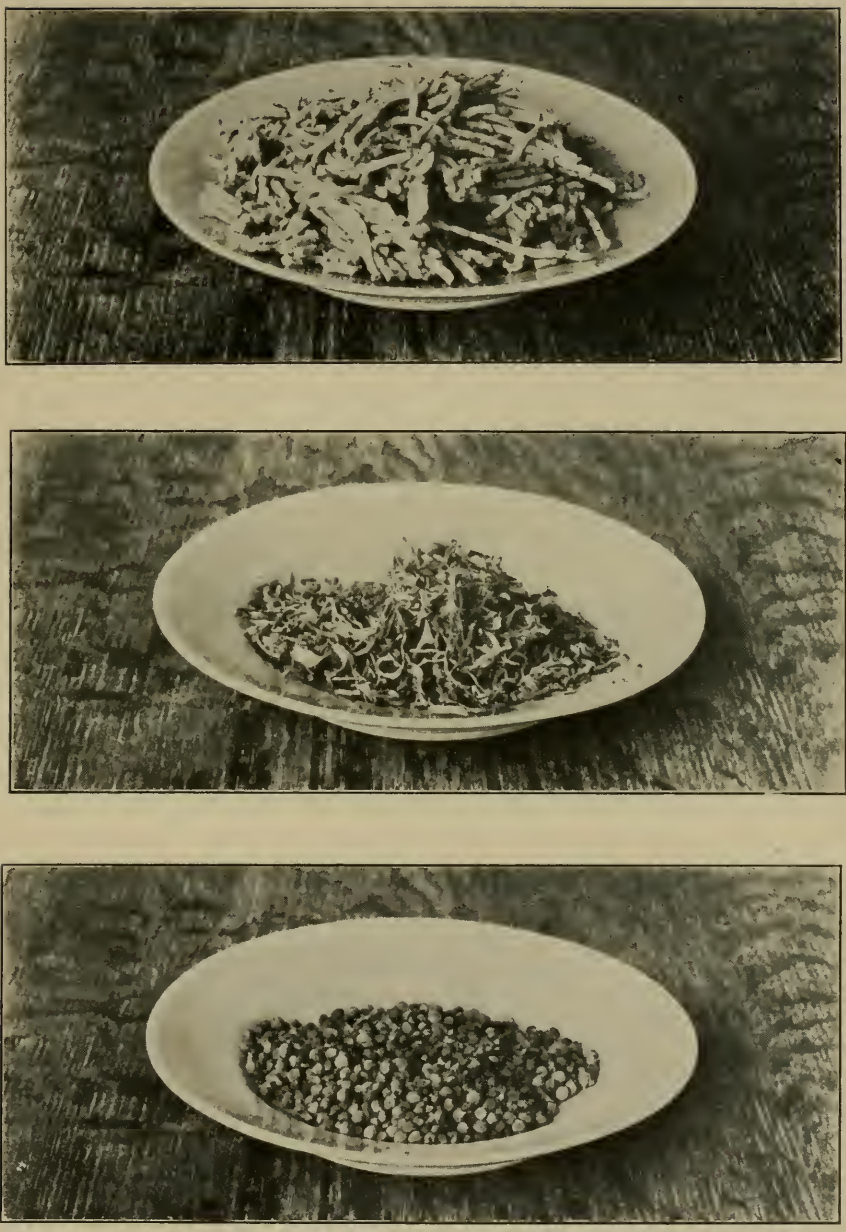
(7) Put the product in the containers in which it is to be kept. If the product has been sun dried, it should be sterilized before being stored by heating to a temperature of about 140 degrees F. If dried by artificial heat or air-current, the product should be heated again for a short time after conditioning, as an added precaution. All containers for dried products need not be air-tight, but they must be tight enough to protect the contents from outside moisture. Having small containers is of advantage in many ways. A pint jar of the dried products will go several times as far as a pint of canned products. It is advisable not to have the package so large



A self-contained evaporator of larger capacity for use out-of-doors. The drier or evaporator is mounted on the top of a simple stove. These driers are large enough for commercial work.

that the contents, after it is once opened, will not be used in a comparatively short time. In case of insects, also, the damage is likely to be localized if small containers are used. For many things paper bags make satisfactory containers if they are filled only about half-full, the upper portion of the bag being twisted tight, bent over and tied with a string. A wide flat brush and melted paraffin may be used to paint the bags over to protect them against penetration of moisture; or paper bags may be used and these kept in tin or other containers to protect them, one bag being taken out at a time. An ordinary tin pail or lard pail will accommodate a number of bags, sufficient for a good many meals.

Label everything carefully; labeling is important even in canning, but it is easier to distinguish what the canned goods are than dried products. Have the labels ready to tag everything as it is put up; and until you are familiar with the work of drying or dehydrating, it will be well to put on the labels also,



Dehydrated products—white potatoes, string beans, and peas—ready to be put in containers for storing.

data as to the length of time the product was dried, etc., as a guide for future work.

(8) Examine before storing. Products which seem perfectly dry when put away, sometimes will be wet after they are put into the containers—with the result that they will begin to mold almost immediately and be spoiled. As a precaution against this, a sample of all products put away should be examined carefully about twenty-four hours after being packed; if there is any sign of moisture being present still, the batch must be put back for further drying.

INSTRUCTIONS FOR DIFFERENT VEGETABLES AND FRUITS

Keeping in mind all that has been said in regard to the necessity for getting the product while young and tender, and using it immediately, the various garden vegetables may be dried according to the following directions. The time given is approximate, as the time required will vary and the product should be carefully watched during the process of dry-

ing, and taken off or kept on until it seems to be in the right condition, regardless of the length of time it has been under treatment.

Beans: Prepare carefully, snap or slice into ½ or 1 inch pieces, and dry.

Or: Grade carefully, picking out the youngest and tenderest to be dried whole. Slice remainder into ¼ to 1 inch lengths; blanch six to ten minutes, with a teaspoonful of soda added to each gallon of water, as this helps to keep the color. Dry in towel or breeze to remove the surface moisture, and then evaporate or dehydrate for two hours or more, depending on the maturity of product. Give a temperature of 110 degrees, raising gradually to 145 degrees.

Or: Whole tender pods may be strung on a coarse strong thread and the strings dried above the stove or out of doors in the sun; it is not as satisfactory as either of the two preceding methods.

Lima beans, gathered while still young and plump, may be dried to give "fresh" beans in the winter. Remove from pods, wash and

blanch from five to ten minutes, depending upon size and maturity. Surface dry and then evaporate or dehydrate for from 3 to 3½ hours, at a temperature of 110 rising to 145 degrees.

Dry shell beans, peas, and *cow peas* may be treated in the same way. They may be made safe for winter storing by heating for ten minutes or so, beginning at 120 and rising to 180 degrees F.; this heat treatment will destroy insect eggs which otherwise are likely to hatch and destroy the stored products. (The *germination* of the product is likewise destroyed, so that it cannot be used for seed.)

Beets: Scrub thoroughly or peel, cut into slices about ¼ inch thick, and dry.

Or: Boil in skins until nearly done; dip in cold water, remove skins, and slice or cube. Dry 2½ to 3 hours, at 110 rising to 150 degrees F.

Brussels Sprouts: Remove stems and loose outer leaves, slice, blanch—with a pinch of soda in water—and dry as for cabbage.

Cabbage: Use firm heads of cabbage, re-

move loose outer leaves, and the inside core, slice remainder with sharp knife or krout cutter and dry.

Or: Prepare as above, shred into slices 2 or 3 inches long; blanch for ten minutes; and dry for 3 hours at 110 to 145 degrees F.

Carrots, Kohl-rabi, Salsify and Celeriac: Wash, peel, cut into slices about ¼ inch thick and dry.

Or: Scrape, pare, slice and blanch for about five minutes; dry off surface moisture and dry for 2½ to 3 hours in the same temperature as for beets.

Cauliflower: Use firm, clean heads; cut out the individual flowers; remove stems; blanch for six minutes; dry for 2 to 3 hours at 110 to 145 degrees. The product will turn black but will regain its natural color when re-soaked. Excellent for omelettes and soups.

Corn, Sweet: Blanch to set the milk in the kernels—two to five minutes. Remove kernels carefully, and dry, stirring occasionally to get an evenly cured product.

Or: Boil or steam to set the milk thoroughly—eight to ten minutes—with a teaspoonful of salt to improve the flavor. Cut the grains crosswise with a sharp, flexible knife, and remove remainder with scraper, being careful to avoid husks and chaff. Dry 3 to 4 hours, at 110 to 145 degrees.

Both these methods are for either evaporating or dehydrating. To dry in the sun, cure in the oven for ten to fifteen minutes and then put on sun trays or in a sun-drier.

Field corn, if taken when tender and suitable for roasting, may be cured in the same way, giving a fairly palatable product.

Greens (Spinach, Swiss Chard, Mustard, etc.): Prepare carefully. While the whole leaves can be dried, a better product may be obtained by slicing before drying—especially beet tops, swiss chard, celery, etc., which have a thick stalk or stem as well as the leaf. Cut into sections about ¼ inch long. Blanch, if desired, to help retain color.

Herbs: Parsley, mint, sage, celery-tops, and so forth, are easily dried. Blanching is

not necessary. Dry either whole or after slicing.

Okra: Blanch three minutes, with soda added to water—a teaspoonful to a gallon. Dry from 2 to 3 hours at 110 to 140 degrees. Young fruits may be dried whole. Older ones should be cut, after removing stem, into slices ⅛ to ¼ inch thick.

Young and tender fruits may be dried on a string as suggested for peppers.

Onions and Leeks: Remove loose, outside skin with roots and tops. Slice (under water if desired) into ⅛ inch pieces, loosen rings, and dry at once.

Or: Wash, peel and slice and blanch for five minutes. Remove; dry off surface moisture, and dry from 2½ to 3 hours at 110 rising to 140 degrees F. Leeks, on account of their different shapes, may be sliced into ¼ inch strips, instead of being cut across.

Peppers: Place peppers in pan in oven until skin loosens, or steam until skin is soft. Remove skin; cut in two; remove seed; and dry very slowly at a temperature of 110 in-

creasing to 140 degrees F. Very small varieties may be dried whole in the sun, or partly in the sun and finished in the drier, or strung on a string as suggested for beans.

Potatoes: Either white or sweet potatoes may be easily dried. This method is particularly good for sweet potatoes, which are rather hard to keep under ordinary conditions as compared to white potatoes.

Scrub thoroughly and boil or steam until nearly done. Remove jackets, and either pass through a meat grinder or a ricer, or slice into pieces about ¼ inch square. (See illustration facing page 100.) Dry until quite brittle. Toast very slightly in open oven before storing.

Rhubarb: Wash, skin leaf-stalks, and cut into pieces ¼ to ½ inch in length. (Some people prefer the skin left on, which gives the rhubarb a pink appearance when cooked.) Blanch as briefly as desired to help retain color. Rhubarb, being one of the most prolific of all the garden vegetables, is usually wasted. This is an easy way to save it.

Soup Mixtures: In drying, the different vegetables are not prepared together, as they are in canning, but each is dried separately. The dried products may be mixed in the proportions wanted, and stored in that way. Carrots, onions, celery, okra, potatoes, and cabbage are the vegetables most often used for this purpose. The proportions may be arranged, of course, according to taste.

Squash and Pumpkins: Remove seeds and centers. Cut into pieces and pare these, and cut again into small strips or shreds about ¼ inch thick and 2 inches long. Dry thoroughly.

Or: Cut into ½ inch strips; blanch for 3 minutes; and dry for 3 to 4 hours, the temperature rising from 110 to 140 degrees F.

FRUITS

While commercial dried fruits are for the most part sun-dried, nevertheless they are equally well suited for evaporating or dehydrating, the latter method usually giving a better quality product.

Apples, Pears, and Quinces: These "hard" fruits are all easily dried, except that in the case of apples, very early and sweet varieties are not so good as the long-keeping varieties.

The simplest method of preparing apples is to core, and slice ¼ inch thick—preferably with a machine. Dip at once into water, to which salt has been added in the proportion of eight teaspoonfuls to a gallon. Dry off surface moisture, and then spread on papers and dry in sun until product has become tough and leathery.

For drying in heat, prepare and cut into eighths, putting at once into cold water to which salt—one ounce to the gallon—has been added. Dry out gradually in a temperature of 150 degrees. Allow four or five hours, or as much longer as may seem necessary.

For dehydrating, slice into ⅛ to ¼ inch thick rings, or shred as directed for sweet potatoes.

Pears may be treated in the same manner except that they should be steamed for ten

minutes or so before drying. This applies also to quinces.

Cherries: Wash and pit, if a large variety is being used. Small cherries may be dried with the pits in. Spread out thin and dry in sun.

Or: Wash, rough dry, and spread in very thin layers with pits in and dry from 2 to 4 hours with temperature of 110 to 150 degrees F.

Peaches: A better product is obtained if the fruits are peeled before drying. Remove stones, pits, and cut into halves, or smaller pieces if large fruit is being used, and spread on trays to dry. In evaporating or dehydrating, use same temperature as for apples.

Plums and Apricots: For plums, remove pits, cut into halves, and dry.

Or: Cover with boiling water; let stand for 20 minutes; drain; rough dry; and dry for 4 to 6 hours, gradually raising the temperature from 110 to 150 degrees F.

Apricots may be treated in the same way.

Only varieties with good, thick solid flesh are suitable for drying in this way.

Raspberries: Prepare carefully, spread thinly, and dry until the fruit can be pressed between the thumb and finger without making a stain. Do *not* dry until hard.

Or: Prepare carefully, spread in thin layers, and dry slowly in heat, gradually raising the temperature from 110 to 125 degrees F. The temperature should not be allowed to go above 130 for the first hour or two, until the fruit is fairly well dried, as otherwise there will be loss of juice by dripping. Dry from 2 to 4 hours at 140 degrees.

Blackberries, dewberries, and huckleberries should be given the same treatment.

Time Table for Blanching and Drying

The following time table shows blanching time for vegetables and the approximate time required for drying vegetables and fruits, with temperatures to be used in drying by artificial heat:

Vegetables	Blanching time	Drying time	Temperature (Fahrenheit)
	Minutes	Hours	Degrees
Asparagus	5 to 10	4 to 8	110 to 140
Beans, green string	6 to 10	2 to 3	110 to 145
Beans, Lima (young)	5 to 10	3 to 3½	110 to 145
Beans, wax	6 to 10	2 to 3	110 to 145
Beets	Till skin cracks	2½ to 3	110 to 150
Brussels sprouts	6	3 to 3½	110 to 145
Cabbage	10	3	110 to 145
Carrots	6	2½ to 3	110 to 150
Cauliflower	6	3 to 3½	110 to 145
Celery	3	3 to 4	110 to 140
Kohlrabi, celeriac and salsify	6	2½ to 3	110 to 150
Leeks	5	2½ to 3	110 to 140
Okra	3	2 to 3	110 to 140
Onions	5	2½ to 3	110 to 140
Parsnips	6	2½ to 3	110 to 150
Peas, garden (mature)	3 to 5	3 to 3½	110 to 145
Peas, sugar (young)	6	3 to 3½	110 to 145
Peppers	.....	.....	110 to 140
Pumpkin	3	3 to 4	110 to 140
Rhubarb	3	.....	110 to 145
Spinach, parsley and other herbs	4 to 6	3	110 to 145
Summer squash	3	3 to 4	110 to 140
Sweet corn	5 to 10	3 to 4	110 to 145
Swiss chard	3	3 to 4	110 to 140
Tomatoes	To loosen skin	.....	110 to 145
Fruits			
Apples	.....	4 to 6	110 to 150
Apricots	.....	4 to 6	110 to 150
Berries	.....	4 to 5	110 to 140
Cherries	.....	2 to 4	110 to 150
Peaches	.....	4 to 6	110 to 150
Pears	.....	4 to 6	110 to 150
Plums	.....	4 to 6	110 to 150
Quinces	.....	4 to 6	110 to 150

CHAPTER VI

PICKLES, PRESERVES AND JELLIES

With the newer and more efficient methods of saving vegetables and fruits by canning and by drying, the *necessity* for the use of pickles, preserves and jellies is to a large extent done away with. In other words, it is possible, where it may seem desirable to do so, to keep the products of which these things are made in more nearly their natural form. But no cellar or storeroom of food saved for winter is complete without a goodly proportion of pickles, preserves and jellies. They add very greatly to the variety and the zest of the winter diet, and should be provided for in planning the summer's campaign for food saving, just as much so as vegetables and fruit for canning and drying.

WHY PICKLES, PRESERVES OR JELLIES "KEEP"

As already explained, vegetables and fruits "spoil" as the result of the presence of cer-

tain vegetable bacteria or molds or yeasts, which begin to attack them soon, sometimes within a few hours, after they have been harvested or are fully matured. Among the several conditions which make it impossible for the bacteria or molds to exist, is a surplus amount of acid or sugar. In pickles, the acid or saline condition of the product keeps them safe from attack. In preserves, the surplus of sugar accomplishes the same purpose. Most of the jellies are too acid to afford favorable conditions to bacteria. The molds which might develop upon them have to have for their existence a continuous and abundant supply of oxygen, so that if they are sealed tightly or covered with paraffin they are safe from attack because the supply of oxygen is shut off.

WHEN TO GET AND USE PRODUCTS MEANT FOR PICKLING, PRESERVING OR JELLIES

In the chapters on canning, drying and storing, the necessity for getting the products while young and tender was emphasized. All

that was said there applies equally to vegetables or fruits meant for pickling. For preserves and jellies, however, another fact must be taken into consideration. That is, the sugar contents of vegetables, and to a greater extent of fruits, increases rapidly as they approach the stage of the becoming fully ripe. If fruits are gathered too green the sugar content is low and both the keeping qualities and the table qualities are affected.

In the making of jellies, of course, the test that is always looked for anxiously is to see whether the product is going to "jell." The reason why it will do so sometimes, and will not others, under apparently similar conditions, is that the "jellying," or setting or hardening of the syrup, is due to the presence of pectin in the fruit. This material, like sugar, increases as the plant approaches ripeness—but it again diminishes rapidly as the fruit gets overripe.

Because of the necessity for getting the sugar and the pectin in as great abundance as possible, fruits for preserves and jellies

should be taken as near the stage of just becoming fully ripe as possible. But to be on the safe side, it is best to aim at getting them slightly before that period is reached. This is a very important point, and one that too often is not taken into consideration. Fruits for pickling, on the other hand, may be obtained in a much greener condition; in fact for some purposes they are preferred green, as they are much more firm and will hold their shape better.

RECIPES FOR PICKLES, PRESERVES AND JELLIES

The following are recipes for a number of the most important of standard pickles, preserves and jellies. There are, of course, many more which can be obtained from other sources. No attempt is made here to include everything, but the recipes given cover a wide enough range to save for winter, in this form, practically all of the vegetables and fruits usually obtainable either in the garden or at low prices in the market.

Peach Butter: Wash the peaches and re-

move the "fuzz" by rubbing them with a damp cloth, but do not peel them. Place them in a granite kettle, add a little water, and stew them until they are very tender. Run them through a fruit press or colander to remove the pits and skins. Put the pulp into a clean preserving kettle and sweeten it to suit the taste. Boil it until it is very thick and of a rich color, stirring it constantly. Pour while boiling hot, and seal at once.

Note: Peach butter is ordinarily considered better if it does not contain spices.

Caution: Use great care in making the butter; stir it constantly and vigorously, so it will not burn.

Pear Preserves: Use the small sugar pears, if they can be secured. Wash and peel the pears, cut them into halves, and steam them until a straw can readily be passed through them. Drop the pears into a heavy boiling syrup and boil them until they are a rich red color, skimming the syrup as often as is necessary. A few slices of lemon improve the flavor. Dip the pears out carefully,

place them in jars, and boil the syrup until it begins to jell around the edges. While it is still boiling hot, pour it into the jars until they overflow, and seal them at once.

Quince Jelly: Remove the "fuzz" with a damp cloth. Cut the quinces into small pieces, put them into a preserving kettle, cover them with water, and boil them until they are soft. Proceed according to the directions given for *Apple Jelly.*

Apple Jelly: Wash the apples and cut them into pieces without peeling them or removing the cores and seeds. Put them into a kettle, just cover them with cold water, and cook them until they are soft and tender. Transfer them to a jelly bag and let them drain. Carefully avoid applying pressure if clear jelly is desired. When the juice has all drained out, measure it and return it to the kettle. For every pint of juice add a pint of sugar and boil together for twenty or thirty minutes, testing all the time. When it will jell on a cool plate it is done. Pour into jelly glasses and cover it with melted paraffin.

Apple Butter: Use sweet cider of good quality, and apples that cook easily. Boil the cider down one-half. Wash, peel, quarter and core the apples. Then boil together rapidly equal amounts of apples and boiled-down cider. If the boiling is slow the apples at once sink to the bottom and are liable to scorch. After the first two hours, constant and vigorous stirring is necessary to prevent burning. If the butter becomes too thick before it is perfectly smooth, add a little more cider and continue the boiling and stirring. Add sugar at any time after the stirring begins if the butter is not sweet enough. Spice the butter to suit the taste.

Damson Plum Preserves: Measure out equal amounts of plums and sugar, and put them in layers in a stone crock. Set the crock in a moderately hot oven and cook the contents for three hours without stirring. Seal the preserves.

Preserved Cherries: Put two quarts of seeded cherries into a wide-bottomed granite pan, pour over them three pints of sugar, and

set the pan over a slow fire. Do not stir the cherries, but shake the pan frequently as if popping corn. As the sugar dissolves, a liquid covers the cherries. After about thirty minutes, or as soon as the liquid forms, increase the heat enough to cause simmering. Continue the simmering without stirring for twenty minutes. Seal the preserves.

Note: Cherries preserved in this manner have a bright red color and a mild flavor. Regulate the fire carefully and shake the pan frequently to avoid scorching.

Preserved Strawberries.—First Method: Prepare the berries as for canning. Place two quarts in a wide-bottomed preserving kettle and cover them with one and a half quarts of sugar. Place the kettle over a slow fire. Do not stir the berries, but shake the kettle frequently as if popping corn. Gradually the sugar dissolves and the liquid covers the berries. When this point is reached, increase the heat enough to cause boiling, and continue the boiling slowly for fifteen minutes. Place a new rubber on a jar, fill it to

overflowing with berries and syrup, and seal it at once. Proceed likewise with other jars until all the fruit is sealed.

Caution: Strawberries heated thus scorch very easily, so the fire must be carefully watched. Strawberries cannot be preserved successfully by this method if a small-bottomed kettle is used. After the boiling-point is reached, avoid hard boiling; allow the berries to simmer.

Preserved Strawberries.—Second Method: Prepare the berries and a heavy syrup as for canning. While the syrup is boiling rapidly, drop in large, firm berries until the syrup is thick with them but not crowded. Lower the heat somewhat and continue the boiling for fifteen minutes, or until the berries are a rich red color and the syrup is thick. Place a new rubber on a jar, fill it to overflowing with the berries and syrup, and seal it at once. Proceed likewise with other jars until the preserves are all sealed.

Caution: Do not cook more than two quarts of berries in the kettle at one time.

Strawberry Marmalade: Marmalade affords the best means of utilizing small and overripe berries free from decay. Wash the berries carefully and quickly, stem them, place them in a preserving kettle, crush them, and add three-fourths as much sugar as there is crushed fruit. Boil the marmalade over a slow fire for twenty minutes, stirring it often enough to prevent scorching. Seal it in jars.

Gooseberry Preserves: Stem and wash the berries, put them into a preserving kettle, half cover them with water, and boil them until they are tender but not until the skins burst. Add as much sugar as there is fruit. Stew the mixture until it is a rich amber color. Seal the preserves in jars or pour them into jelly glasses and cover them with melted paraffin.

Caution: Use care to prevent scorching.

Gooseberry and Rhubarb Marmalade: Stem, wash and mash the gooseberries and add any proportion of young rhubarb desired. Place the mixture in a preserving kettle, add enough water to cover the bottom

well, and allow it to simmer slowly until the fruit is soft. Add as much sugar as there is fruit, and continue the boiling slowly for twenty minutes longer. Seal the marmalade jars, or pour it into jelly glasses and cover it with melted paraffin.

Caution: Stir the marmalade constantly while it is boiling to prevent scorching.

Red Raspberry Marmalade: Wash and drain the berries, crush them thoroughly, place them in a wide-bottomed granite pan, and bring them quickly to a boil. Run the mass through a fruit press to remove all seeds. Measure the pulp and juice and place it in a clean granite pan with three-fourths as much sugar. Bring the mixture to a boil and then allow it to simmer for ten minutes. Pour the marmalade into jelly glasses and cover it with melted paraffin.

Black Raspberry Preserves: Follow the directions given for *Preserved Strawberries.* Use either method.

Preserved Pineapple: Peel the pineapple and remove the eyes. With a silver fork re-

move small pieces until the core is reached, beginning at the small end. When enough pineapple is thus prepared, place it in the preserving kettle, and add three-fourths as much sugar. Allow this to stand until it forms a syrup. Then cook the mixture slowly until the pineapple becomes transparent. Transfer to jars, fill them to overflowing with the boiling syrup, and seal them immediately.

Grape Jelly: Wash the bunches thoroughly, remove the fruit from the stems, put the grapes into a preserving kettle, add a little water, and boil slowly until the grapes burst open and are soft enough to drain. Drain the juice through a cheese-cloth bag, measure it, and add an equal amount of sugar. Cook the sweetened juice in a porcelain kettle rapidly for about twelve minutes or until a little of the juice hardens when cooled on a saucer, skimming it frequently. For green grape jelly the fruit should be gathered just as it begins to turn color.

Rhubarb Marmalade: Put into preserving kettle two quarts of young rhubarb cut into

cubes. Add from one to two quarts of sugar (depending upon the desired richness), the pulp and juice of two oranges, and one cupful of blanched almonds chopped fine. Boil the mixture very slowly for three hours, or until it has a rich red color. Seal the marmalade in jars or pour into jelly glasses and cover it with melted paraffin.

Note: If desired, two sliced lemons may be added; and the nuts may be omitted.

Caution: The marmalade must be stirred frequently while boiling to prevent scorching.

Rhubarb Conserve: Cook together for five minutes two quarts of rhubarb, two and a half cupfuls of sugar, and the pulp and juice of two oranges ground fine. Add one pound of seeded raisins chopped fine and cook the mixture five minutes longer. Remove the conserve from the fire, add two cupfuls of nut meats chopped fine, and seal the conserve in jars.

Orange Marmalade: Remove the seeds and slice thin six oranges and three lemons. Add

three pints of water for each pint of fruit. Let the mixture stand twenty-four hours; then boil it an hour. When it cools add an equal amount of sugar and boil it an hour longer. Seal the marmalade in jars, or pour it into jelly glasses and cover it with melted paraffin.

Note: This makes about twenty glasses of marmalade. A little more sugar may be added if desired.

Pickled String Beans: Wash and string the beans, but do not break them. Cover them with cold water and boil them ten minutes. Drain off the water, and then immediately pour boiling water over them. Salt them as for table use and boil them until they are tender. Skim out the beans and place them in jars. While the beans are boiling-hot, cover them with boiling vinegar sweetened and spiced to suit the taste, and seal the jars at once.

Pickled Onions: Remove with a knife the outer skins of small silver-skinned onions so that each is white and clean; put the onions

into a brine strong enough to bear up an egg, and let them stand twenty-four hours. Drain them and place them in jars, putting in thin layers made up of horseradish, cinnamon bark, cloves, and a little cayenne pepper. Heat to the boiling-point a gallon of vinegar and a quart of brown sugar; pour the boiling syrup into the jars until they overflow, and seal the jars at once.

Note: In making the seasoning use these proportions: Half a teaspoonful of cayenne pepper, two teaspoonfuls of chopped horseradish, two teaspoonfuls of cloves, four teaspoonfuls of cinnamon bark.

Pickled Beets: Boil the beets in water until they are tender, and then put them into jars. Measure out equal parts of good cider vinegar and water, and add a little sugar and salt. Heat this mixture, pour it over the beets while it is boiling-hot, and seal the jars at once.

Cauliflower Mustard Pickle: Divide a large head of cauliflower into pieces and boil it with a dozen white button onions in salted

water until it is about half done. Drain the cauliflower and onions, and add a dozen dill pickles chopped fine. To two quarts of vinegar add two cupfuls of sugar, two teaspoonfuls of celery seed, and one teaspoonful of mustard seed, and bring the whole to a boil. Mix together three-fourths of a cupful of flour, a quarter of a pound of ground mustard, a tablespoonful of tumeric powder, and a little cold water; add this mixture to the boiling vinegar and continue the boiling five minutes longer. Pour the boiling mixture over the pickle and seal it in jars.

Note: This pickle is easily prepared. The above amounts make about a gallon of pickle.

Chow Chow: Chop together two quarts of green tomatoes, twelve small cucumbers, four green peppers, a small head of cabbage, six onions, and a quart of string beans. Let the mixture stand in a covered enamel pan over night. In the morning put the mixture into a pan with alternate layers of salt, using a cupful of salt, and reserving enough for the last layer. After this has stood twelve hours,

drain it. To a gallon of vinegar add a tablespoonful each of celery seed, mustard, allspice, pepper and cloves; heat the mixture to the boiling-point, add the vegetables, and cook them until they are tender. Seal the chow chow in jars.

Piccalilli: Chop together a peck of green tomatoes, a head of cabbage, eight large onions, and three red or green peppers. Add a cupful of salt and let the mixture stand over night. In the morning drain off the liquid, add two quarts of vinegar, one pound of brown sugar, a quarter of a pound of mustard seed, two tablespoonfuls of cinnamon, two tablespoonfuls of ground black pepper, a quarter of a teaspoonful of cayenne pepper, and a bag containing a tablespoonful of cloves, a tablespoonful of allspice, and two tablespoonfuls of ginger. Boil the mixture for thirty minutes, stirring it frequently to prevent scorching and seal the piccalilli in jars.

Chili Sauce: Peel and slice a peck of ripe tomatoes, and add six green peppers chopped

fine, six onions chopped fine, two tablespoonfuls of cinnamon, two teaspoonfuls of cloves, one tablespoonful of salt, two cupfuls of brown sugar and five cupfuls of vinegar. Boil the mixture two hours, and seal the chili sauce in jars.

Sweet Green Tomato Pickles: Mix together one peck of green sliced tomatoes, six large sliced onions, and one teacupful of salt. Let the mixture stand over night, and in the morning drain off the liquid. Boil the mixture for five minutes in two quarts of water and one quart of vinegar. Drain it again. Boil for fifteen minutes four quarts of vinegar, a quart of brown sugar, half a pound of ground mustard, a tablespoonful of cloves, two tablespoonfuls of cinnamon, two tablespoonfuls of ginger. Put the drained tomatoes and onions in jars, pour over them the boiling liquid, and seal the jars at once.

CHAPTER VII

STORING

The most natural and the easiest way of saving vegetables and fruits for winter use is to store them. Nature has decreed that certain of the vegetables should keep from the end of one growing season to the beginning of the next, either to renew directly the life cycle, as in the case of the potato, or to furnish protection for and sustenance to the sprouting seedling, as in the case of squashes and apples. Such perennial roots as carrots and parsnips complete the all-important job of seed production for the second season.

Storage can be used successfully, however, only for crops of this kind, and only where sufficient room and the proper conditions for keeping are available. For these reasons storing alone will not make it possible to have a complete winter larder, and stored prod-

ucts should be supplemented by the other methods of food saving already described. As a general rule, however, where storing is possible it is the most economical and the most satisfactory way of saving vegetables or fruits for winter.

While, as already stated, the list of things which may be saved by storing does not cover the whole garden, nevertheless it does include many more things than usually are saved by this method. This will be seen from the list of vegetables which may be saved, given in the latter part of this chapter. All of these things can be kept for some time after they would naturally perish in the garden, the great majority of them until well into the new year.

THE ESSENTIALS OF SUCCESSFUL STORAGE

There are three things essential to make the winter storage of vegetables or fruits successful. First, a product that is perfect, sound and not overripe; second, good storage

conditions; third, conditions adapted to the product to be kept.

Important as it is to use only perfect vegetables or fruits for canning or drying, it is even more so to have only perfect specimens for storing. The product should be sorted and graded, *most carefully*. Specimens that are more mature or ripe than the average, or that have been cut or bruised even in the slightest degree, should be culled out from those that are to be kept. These may be kept separately, to be used first, as they will often keep for some time without any trouble and are perfectly good to use. But the slightest scratch or bruise or "spot" must be sufficient to disqualify anything from the box or barrel or bin when they are being put away for the winter. In fact, bruises that are so slight that they can barely be detected will prove a possible source of a great deal of spoilage.

For this reason it is a good plan to store temporarily all things which it is difficult to keep, such as hard fruits, onions, pumpkins, squash, etc., and go over them again very

carefully before they are put into final winter quarters. Even with these precautions they should be examined occasionally throughout the winter, and sorted over at the first sign of decay.

The factors which make for good storage conditions are, in general, three: ventilation, temperature, and the degree of moisture in the air. Of these, ventilation is the one most usually neglected, because its importance is not realized. It is not sufficient, as most persons think, to put the product to be stored in a cold or a warm place to be kept. Closely confined air, either cold or warm, makes for the development of bacteria or mold which causes decay.

The first essential to provide for, therefore, in selecting and making a place to store vegetables—whether in the cellar, out of doors, or in the attic—is ventilation. The details of providing ventilation, of course, will depend upon existing conditions, but it should be so arranged as to be easily controlled. Suggestions for providing ventilation for dif-

ferent types of rooms and pits for storing are shown in the accompanying cuts.

While the temperature in the storage rooms is usually controlled largely by ventilation, that alone cannot be counted upon altogether. With our modern methods of living, where every room in the house is heated and usually there is a furnace or heater of some kind in a small cellar, it is more difficult to find a cool place in which to store vegetables and fruits than was formerly the case. Generally, however, it will be possible either to devote a small room to storage purposes, or to partition off part of the cellar space, which, if it be fitted up to take advantage of all the room available, will accommodate a surprising quantity of vegetables for its size. In making a storeroom of this kind there should be direct ventilation to the outside, so that the room can be shut off entirely from the heated part of the cellar except when it is required to get things from it.

A few things require for their keeping a warm instead of a cool temperature. The

difficulty in providing suitable quarters for these vegetables is in giving them a place where the temperature will be even—a constantly varying temperature is not conducive to good keeping.

A considerable amount of moisture in the air is required where root crops and other vegetables, which normally would remain in the soil, are to be kept. A dirt floor tends to equalize the air moisture and keep it normal. Where a cement floor has to be used, however, soil, sand, moss, or some similar material which will keep the vegetables moist without being wet, can be used to pack them in. Pans of water set where they can evaporate will also tend to keep a normal amount of moisture in the air. A surplus of moisture, however, is just as objectionable as too little: this is one reason why ventilation is important. For a few things the atmosphere should be kept as *dry* as possible. These exceptions to the general rule are mentioned in the following paragraphs.

PROVIDING SUITABLE QUARTERS

No matter what, or how much, or how little, one may plan to keep for winter by storing, the best possible place that can be provided to keep it should be prepared in advance. Even if this involves considerable time and trouble and some expense, it will pay to do it; unless that can be done, it will be best to give up making the attempt at keeping things in this way, as the waste and loss will more than offset any saving which may be made by purchasing in quantity in the fall.

In preparing for winter storage, in addition to the factors mentioned above, *convenience* and *control* should also be taken into consideration. Convenience in putting the vegetables away, however, is not the only thing to be kept in mind. They will be wanted through the winter months, and while they have to be put into storage only once, one will have to go to them a great many times to take them out. For this reason it will pay to go to considerably more trouble in fixing a reg-

ular cellar or storeroom than it would take to make a pit outside. Even where one has a storeroom or cellar, however, an outside pit is of great value in keeping vegetables through the winter for use in the spring. Properly protected, they will remain in much better condition than in the cellar. If the pit is in a sheltered place, potatoes and root crops may be taken out in May in as good condition as they were put in in the fall.

In the following paragraphs suggestions are given for making or fitting up the various types of places in which vegetables and fruits may be stored for winter.

CELLARS

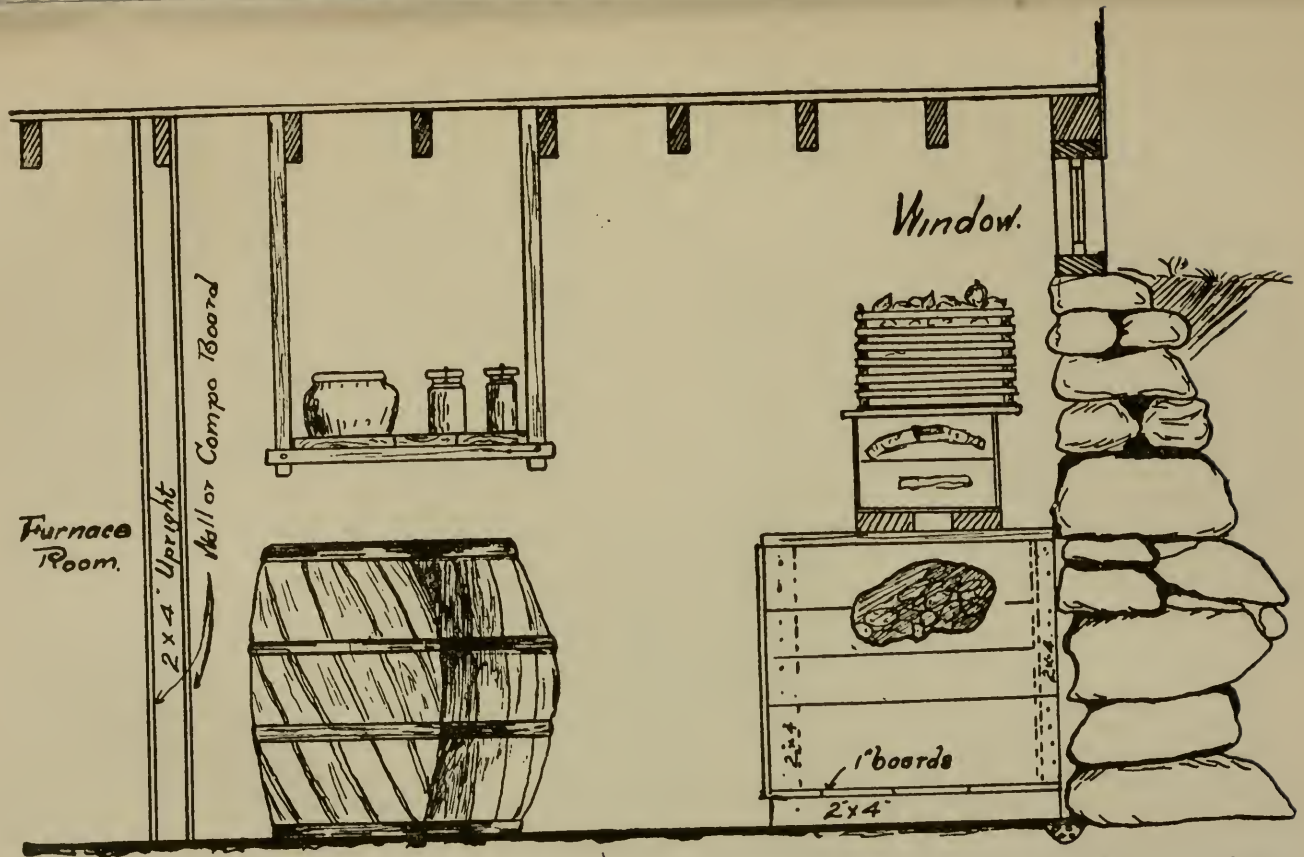
In most old houses the cellars were designed for storing and no changes of any great extent are necessary. The ventilation is sometimes inadequate. This may be improved by building a box or hood over the cellar window, so that air can be admitted in stormy weather and without letting in much light if it is desired to have the win-

dow open during the day. Another mistake is to allow old bins or partitions to remain after they have become half decayed and make the finest kind of camping place for germs and equally good resorts for mice and rats. All bins should be renewed as often as necessary and kept in good condition. The cellar should be cleaned after the last of the stored products are moved in the spring, and given a good coating of whitewash or calcomine before they are put in in the fall. Every square inch of bins, walls and ceilings should be dry and clean: this is not a matter of being "finicky" but commonsense precaution against losing the things you have gone to the expense and trouble of putting into storage. Ideas for the convenient arrangement of a storage cellar may be had from the accompanying diagrams.

In the cellars of most modern houses, little or no provision has been made for the storing of food products for winter. There frequently is but one big room, well lighted and with concrete flooring, more sanitary perhaps

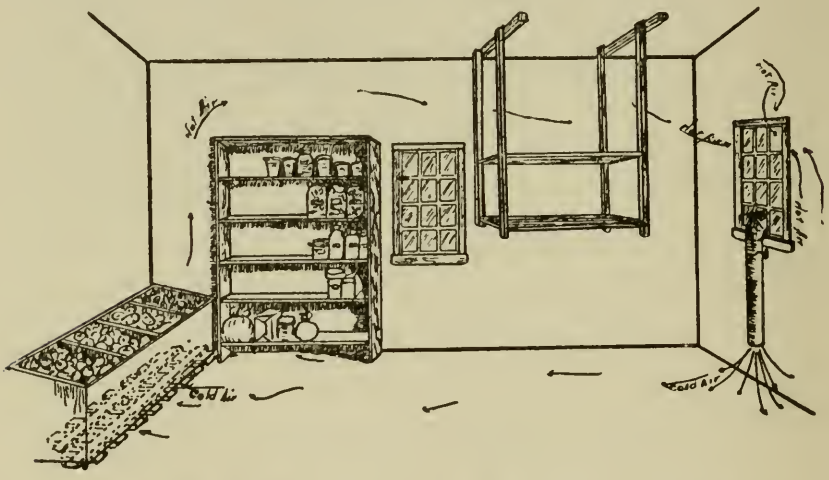
than the old-fashioned cellar but in many ways not so well suited for the purpose in hand. Usually, however, there is space enough to partition off a small room to be used for vegetables alone, where conditions can be controlled independently of the cellar. The expense involved in doing this work is not great. Rough pine two-by-fours run from the floor to the ceiling may be set up, leaving a space for a door. Artificial wall board or compo board, which comes in strips thirty-two inches wide, may be used to sheathe these uprights, inside and out. This will make a substantial partition with a four-inch air space, effectually keeping out the heat from the warm part of the cellar. The strips of wall board can be bought in any length or height up to twelve feet, so there will be practically no fitting to be done. The door may be made out of the same material, nailed to both sides of a frame made out of two-by-threes.

It is preferable to have two windows in a storage cellar, even if they are very small



Part of the cellar may be partitioned off for a storage room, by leaving a dead air space between the walls. If shelves and containers are arranged to make the best use of the space available, a small room will accommodate enough fruits and vegetables for several months' supply.

ones. If they are exposed it may be necessary to have double sash or a wooden frame or shutter to put over the windows in very cold weather. There should, however, be some means of ventilation that can be used



A well-arranged storage cellar. The cool air entering is delivered near the floor where it can be distributed through the room and find its way out of the open pane at the top, carrying with it surplus moisture. Note air space under the bin for potatoes and other root crops. The hanging shelf not only economizes on room but is safe from rats and mice.

even in cold weather. A piece of stove pipe with a damper, placed in the window so that the lower end is near the floor and another piece placed in the second window, or in the *top light* of the same window, will aid greatly in keeping the cellar ventilated at all times,

and the ventilation can be adjusted to suit conditions without the bother of opening or shutting the sash.

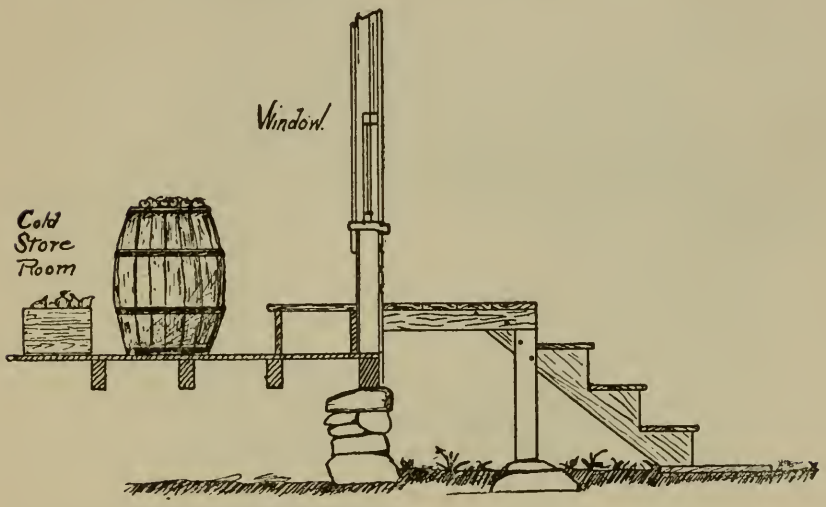
The cellar should be kept dark as well as cool and thoroughly ventilated. A double thickness of burlap or some other heavy material can be arranged so that most of the light can be excluded.

Convenience in storing and in getting out stored things, as well as the keeping qualities of the cellar or storeroom, will depend largely on how the storeroom is fixed up. If there are more than a few bushels of potatoes and root crops to be kept, bins should be arranged along one side. If the floor is of concrete, they should have raised bottoms with a couple of inches or so of space to allow free circulation of air. The size, of course, will depend on the amount of stuff to be stored. If there is a considerable quantity it will be convenient to have the boards forming the front of the bins held in position by cleats so that they may be removed as the contents of the bin are lowered. Shelves may

be arranged along the wall or depended from the rafters. The latter method makes a way of utilizing space which is not available for other purposes. As most of the canned and dried products will keep better in the cool dark room than where it is warmer, a set of shelves or a cabinet should be arranged for these also.

It is often the case that where there is no cellar space available there is a room that can be used for storage; a small room or even a large closet, if it can be used exclusively for storage, will accommodate a large quantity of vegetables and fruit. It should be located, if possible, on the north or west side of the building—the coldest room in the house. If no small room is available, a partition like that already described for use in a cellar, may be put in to make a special storeroom. Ventilation and some method of keeping the room dark should be supplied. One of the chief objections to using a room of this kind is the trouble and the "muss" of taking things through the house to be stored.

This can be overcome by the simple expedient of building a small platform and steps at the window on the outside, so that the baskets or boxes of vegetables may be taken in readily through the window and put in the

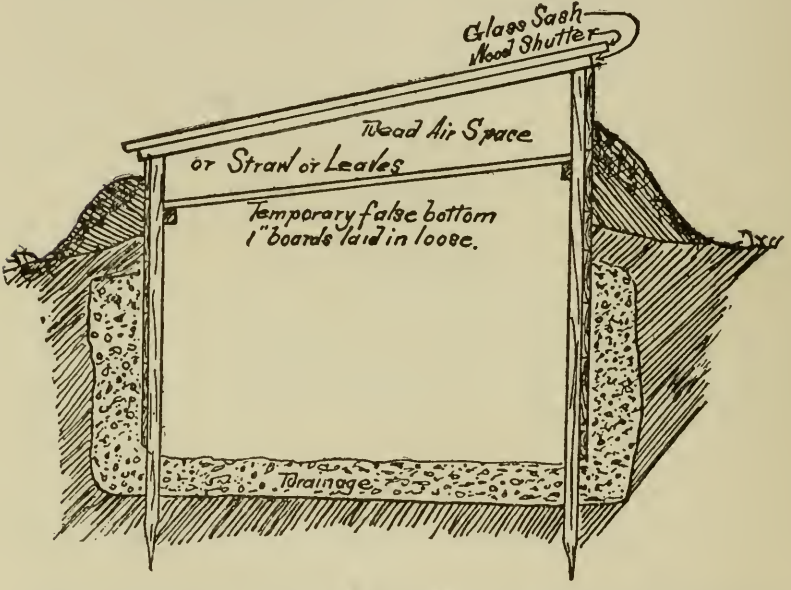


A convenient outside entrance to a cold store-room. If kept dark and at as low a temperature as possible, potatoes, root crops and fruits may be carried for a long time in such a room.

barrels or boxes or other containers in which they are to be kept.

The Outdoor Cellar: In some cases, where there is no place available that can be made into a cellar storeroom, and soil conditions outside are favorable, a small outdoor cellar

may be made for this purpose. If there is a deep bank that it can be built into, and light sandy soil for excavating, it is a comparatively simple and inexpensive job to make a

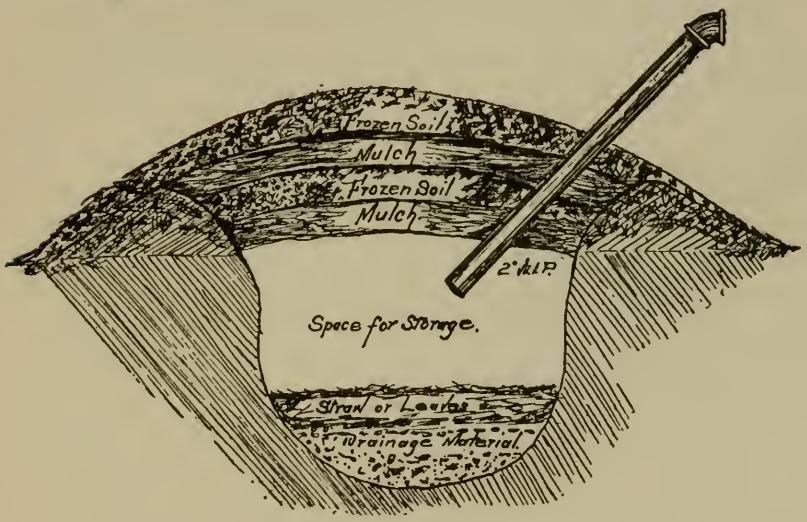


The combination cold frame and storage pit is very convenient for the small suburban place. Used for vegetables during winter and early spring, and for starting plants during spring and early summer.

room that will keep out frost and remain cool through summer.

Storage Pits: A permanent pit on any place where a large quantity of vegetables are to be stored, or where there is no other place available for storing them, is one of the

best investments that can be made. A combination pit and hot-bed frame will cost little more than if it were to be used as a hot-bed alone, and give considerable storage space that is comparatively easy to get at in all



Where the soil is well drained, root crops of all sorts may be carried through the winter, in even better condition than in the cellar, by burying them in a pit or in a trench with one or two layers of frozen soil, alternating with a covering of leaves, marsh hay or straw. An iron pipe or a wooden flue should be inserted every few feet to carry off the surplus moisture. In extreme cold weather, this may be stopped up with an old piece of bag.

but the stormiest kind of weather. The winter supply of vegetables will be well out of the way when use for the hot-bed frame in March or April becomes necessary.

The Temporary Pit: A temporary pit for

storing things or carrying over a surplus for spring use, in addition to what is stored in the cellar, may easily be made. Good drainage is the first requisite. Such a pit may be made either in the ground or, where perfect drainage may not be had, on the surface. Both methods are shown in the accompanying cut.

DIRECTIONS FOR STORING VEGETABLES AND FRUITS

Asparagus: While this cannot be "stored" in the ordinary sense of the word, the roots may be stored and the plants started into growth indoors in a light warm cellar, or in a frame, giving tender shoots during the early spring months. The roots should be dug up with a good ball of earth just before freezing weather, and allowed to remain where they are until the balls of earth have frozen, when they can be put in a shed or cold cellar until they are wanted for forcing.

Beans: Any surplus of pole beans, Lima beans or even of most of the dwarf or string bush beans, which get too large, should be

allowed to mature on the vines until the pods have become quite dry, and then picked and stored in a dry place in the sun. In the fall they should be shelled by thrashing or breaking up the pods and the dry beans put in tin pails or other suitable containers and kept in a dry warm place.

Beets: These may be stored in a cool cel-

Where a pit or trench alone has to be depended upon, for winter storage, it is a good plan to divide the space so that the various vegetables will be obtainable when it is broken into at one end. The cut above shows a cross-section of a trench arranged in this way. It contains cabbage, potatoes, parsnips, and turnips.

lar or storeroom or outdoors in a pit or trench. They will keep better if covered with soil or with moss or leaf mold. The latter materials are very light and spongy and will retain enough moisture to keep the roots plump, and are much more convenient to handle than soil or sand where they can readily be obtained.

Brussels Sprouts: These may be stored in-

doors either by hanging up the plants by the roots, or, as is done with cabbage (see below), better still by covering the roots with moist soil, packing the plants in quite close together. Part of the crop may be left where it grows as it will remain in good condition until after the holidays, the flavor being rather improved by freezing.

Carrots: Handle these the same way as beets. They should be taken up late in the fall before there is danger of heavy frost that will kill the tops. The tops should not be cut off too close: leave an inch or so of the leaf stem and allow to dry off for a few hours before storing. They may be left out, to keep for a few days, if covered up to protect from frost at night.

Cabbage: This standard winter vegetable may be stored either indoors or out. In the former case a good way is to put the trimmed heads in slotted or open vegetable barrels. Or the plants may be taken up roots and all, the loose outer leaves trimmed off, and three or four heads tied together by the roots and

suspended from nails in the cellar rafters. In this way they will keep well without occupying any floor space, which is needed for other things, such as root crops and fruits. For this purpose, ordinary corn ties made of stout cord, with a wire clamp at one end which saves the trouble of tying and untying the

Well matured cabbage can easily be kept through the winter in an outside trench or pit. The heads are packed as shown, covered with straw or marsh hay, and as freezing weather approaches, gradually cover with soil. It is important not to put the soil on at first, as this will cause them to heat and spoil.

string, may be utilized to good advantage. Cabbage to be stored out of doors may be kept either with the roots on, or in the form of trimmed heads. The method of packing is shown in the accompanying cut. It is well to store at least part of the crop out of doors, as this will keep in perfect condition until late spring, when it will be much more fresh and

crisp than that which has been stored indoors.

Cauliflower: This delicious vegetable is not as easy to keep as cabbage. If brought in from the field and stored in a cold place just before danger of injury from a heavy frost, the heads will, however, remain in good condition for some time. It may readily be kept longer, however, by placing it in a frame or in a cool cellar, covering the roots of the plants with moist soil so that growth will continue. In this way, small immature heads may be saved, and will develop to a surprising extent after they are taken up and put away.

Celery: If there is enough celery to keep for use well into the winter, it should be handled in three lots. (1) That wanted for early use may be banked up with earth out of doors and covered up with leaves later and used as wanted directly from the garden. (2) The celery wanted for late fall should be stored in a trench outside. Make this in a well-drained place about a foot wide and

deep enough to hold the stalks up to the tops of the leaves. Take up the plants with the roots on, and what soil adheres to them. The tops and stalks should *be dry* when stored away. When there is danger of severe freezing weather, cover the trench up with hay, a few inches at first, and adding more as the weather gets colder. Celery may be kept in a trench of this kind usually until after Christmas. (3) The remainder of the crop should be stored in a cool cellar. The most convenient way of handling it is to get some boxes, about as deep as the celery is tall, in which the celery may be packed away after a couple of inches of light soil or sand is placed in the bottom of the boxes. The plants are packed in the box upright, quite tightly, with the roots on the moist soil at the bottom; if the soil seems to dry out, give it a little water occasionally, *being careful not to get it on the leaves or stalks.* In this way the celery is kept fresh and crisp and will continue growth and blanch thoroughly after being put into the cellar.

Corn: While sweet or sugar corn is not stored, nevertheless the ears that are in condition to eat when the first killing frost strikes them may be saved for some time by cutting and shocking the corn in the same way that field corn is handled. The immature ears will remain in their eating condition for some time; of course they gradually shrivel and become tough.

Onions: These should always be harvested as soon as the tops begin to get dried out: if they are left in the ground after that they are apt to begin a second growth, and in that case it will be almost impossible to keep them all through the winter. After being thoroughly dried in an open shed or in the garden, the tops should be cut off and the onions placed in vegetable barrels or in open crates. It is better not to put them into permanent winter quarters until there is danger of freezing weather. They should be perfectly firm, hard and dry when put away; to keep well they should be thoroughly ventilated while in storage. The ordinary Ber-

muda or Texas onion crates, which can be bought second-hand at most grocery stores, are the best and most convenient container for keeping onions. A crate holds about a bushel, and the crates can be stacked up on top of each other. The white varieties of onions and the extra large Spanish or Bermuda onions do not keep as well as the standard yellow or red globe or flat onions. To the former class belong such varieties as Prize-taker, Gigantic Gibraltar, Giant Rocca, Denia, etc. Therefore any of these varieties that there may be on hand should be used first.

Parsnips: Part of the crop—say, one-half or two-thirds—should be taken up for storing in the cellar, or in a pit or frame out of doors, and the remainder left in the ground. In the cellar the roots should be covered with soil or moss to retain the moisture and keep them plump.

Potatoes: Even if you have not raised enough of your own potatoes for winter use it will pay to buy them to store, as they are usually very much cheaper in September and

October than later on. They keep best in a very cool, rather moist, cellar and must be protected carefully from light, as this not only endangers their keeping qualities but makes them less valuable for food and inferior in quality. When it is necessary to keep potatoes where the air is very dry, instead of allowing free circulation of the air, it should be prevented as much as possible by placing the potatoes in large boxes (such as packing-cases obtained from a store). Line these first with several thicknesses of newspaper, and make a tight-fitting cover. Several days' supply should be taken out at each time, so that the box will be opened as infrequently as possible. Potatoes that are very early may be best kept for future use by being buried in the soil in boxes of convenient size. If put down eighteen inches or so below the surface in this way, they will keep in as good condition as the delicious "new potatoes" that are first ready to eat when the summer crop comes in. Potatoes

are also one of the best vegetables for keeping over in pits.

Sweet Potatoes: The sweet potato is entirely different in its requirements for winter storage from the white or Irish potato. It should be given a rather high temperature, fifty to sixty degrees if possible, and kept in a very dry place. The air should be permitted to circulate freely about the potatoes. Onion crates, such as already mentioned, may be used for storing sweet potatoes, and if placed near the chimney in the attic, will furnish about the right conditions.

Pumpkins: These also require dry, warm storage. They should be gathered before danger of hard frost and stored, if possible, temporarily in an open shed or other airy place where they will be protected from freezing weather. *Leave the stems on* when gathering. The greatest trouble in keeping pumpkins and squash arises from bruises made when they are being gathered and taken in. In spite of their apparently hard shells they should be handled like eggs. They may be

put in the cellar near the heater or in the attic. Each one should be examined carefully as they are stored away, and those which show the slightest sign of decayed spots should be put to one side for immediate use or for drying or canning.

Rhubarb: While this cannot be stored, it can be kept for winter forcing in the same manner as asparagus.

Salsify: This delicious vegetable is handled and kept in the same way as parsnips.

Squash: This may be stored and kept as pumpkins are, taking even more care in handling them when taking them from the field and putting them away.

Tomatoes: Tomatoes may be kept in storage much longer than is usually supposed. Fruits that have obtained nearly their full size will ripen up gradually if packed away in a cool, rather dark place. Placed in front of a window in the hot sun, as they sometimes are, they merely cook. All fruit to be kept should be very carefully picked and preferably wrapped individually in fruit pa-

pers such as those which come around fancy apples, or in pieces of newspaper. Any light piece of paper will do, or they may be packed away in crates in perfectly dry dead leaves or grass. It is also possible to keep the fruits for some time by taking up the best plants by the roots, trimming off the surplus foliage and hanging the skeleton plant, with the best fruit, up in a dark dry place. The tomatoes will continue to ripen gradually for some time.

Turnips: These keep very easily and readily, either in the cellar or in houses or pits. Handle in the same way as beets or carrots.

FRUITS IN STORAGE

Winter apples and some varieties of pears keep readily. Like potatoes they may also be bought to advantage in the fall even where they are not grown on the place. Wherever obtained, they should be sorted most carefully, saving only the sound and perfect fruits for storing. The others may be used or canned or dried. Though it may seem a little more

trouble, the safest and best way is to wrap each fruit individually in a paper wrapper. They may then be packed in onion crates, which hold about a bushel each, are convenient to handle, and can be stacked on top of each other. One reason why apples do not seem to keep well when placed in a cellar with other things is that, like butter, they are susceptible to odors from other things near them, and their quality is affected if they are placed, without being wrapped, near such vegetables as onions, turnips, or even potatoes. If they must be placed near other things, they may be further protected by being placed in a barrel lined with newspaper or wrapping paper, with a tight cover. Fruit should not be kept where the air is too dry or it will shrivel. A temperature of 35 to 40 degrees is best. If apples are not individually wrapped they should be gone over very carefully occasionally, and all showing any signs of decay should be removed; if not, the trouble will spread quickly and may spoil the whole lot.

CHAPTER VIII

EQUIPMENT AND ACCESSORIES

An elaborate equipment for the home canning and drying of fruits is not essential. If one has suitable containers, it may be done with the simplest of utensils—the things ordinarily found in any kitchen outfit.

While this is true, if one is going to take up food saving as a serious part of housekeeping—which it should be, for it means not only better winter diet, but a very considerable saving in the year's expenses for the table—then, it is important to have some equipment especially designed for this work—just as important as it is to have a wheel hoe in the garden, a gas range, a carpet sweeper, an electric iron, or any of the other modern contrivances which make for more efficiency and less labor.

Modern equipment especially designed for

doing the different kinds of work which have to be done in connection with food saving is important, however, not merely to lessen the work of the woman in the kitchen. It helps to make results more certain, and makes possible the putting up of better products—that

Don't begin your season's work of canning, pickling and preserving, without suitable tools. None of the things shown here is expensive, and with care they will last for years. In addition to the utensils shown above, a sugar tester will be found of very great use.

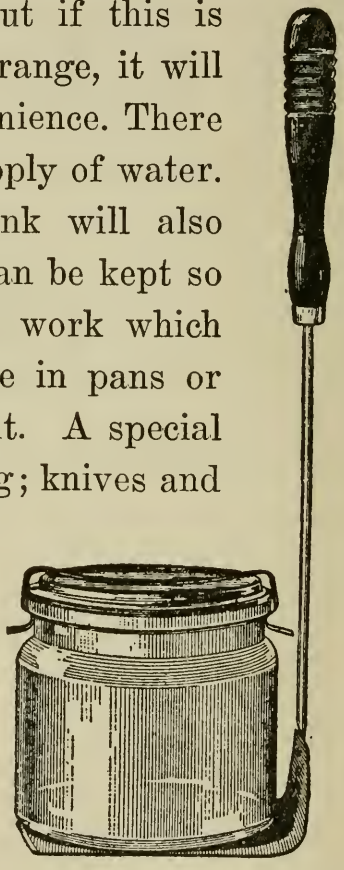
is one reason why it pays, as an *investment,* as well as in the saving of labor, if the latter is considered a luxury. Another reason is that special equipment makes it possible to do more work in the same amount of time, and frequently the rapidity with which this work can be done will determine how much

of what there is available can be saved. Often it is a case of putting things up on a certain day or of losing them altogether.

An argument which comes to mind against getting special equipment for this work is, of course, that it will be used for only a short time in the year, and, therefore, is expensive. If, however, the cost of such special equipment as will be required is figured out on a business basis, as it should be, it will be found to be very reasonable, considering the advantages gained. If well cared for, a drying or canning equipment will last for a great many years—ten at least. Twenty per cent. of the cost price, therefore, is a very generous allowance to make for depreciation and interest on the original cost. Even on this basis, the yearly charge for a twenty-five dollar outfit would be only five dollars a year. The saving in work and in materials, and in the additional amount of products which it is possible to put up with a suitable equipment, even for a small family, will very quickly equal this sum of money.

GENERAL EQUIPMENT

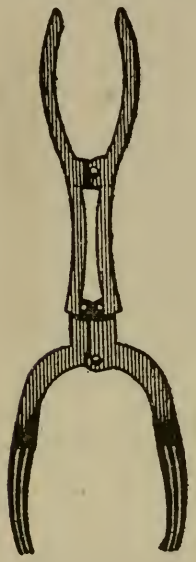
First of all, of course, comes the question of a stove. Any ordinary cooking stove will answer all purposes; but if this is supplemented by a gas range, it will add greatly to the convenience. There should be a generous supply of water. A modern enameled sink will also aid very much, as this can be kept so clean that much of the work which would otherwise be done in pans or kettles may be done in it. A special dish-pan, kept for peeling; knives and spoons; a measuring cup; pots of different sizes, including one large one (five gallons or so), for syrup; a wire basket for straining; a colander; scales, and cloths for handling hot bottles and so forth, are among the essentials.



Lifter which can be made from a cake turner to lift jars and cans from sterilizer.

To these, there may well be added, if more

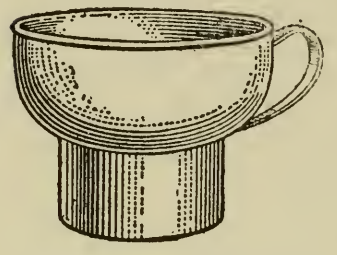
than a few cans are to be put up, most of the following: a saccharometer or sugar tester, which can be bought for about a dollar; a good cooking thermometer, suitable for use in hot liquids —(both of these can be obtained at most drugstores and the latter, especially, is quite essential); a jar-filling funnel; and a jar lifter.



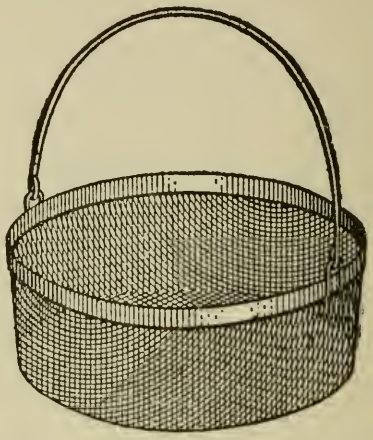
Another type of jar lifter. (For illustration of this lifter in use, see illustration facing page 44.)

Where much food is to be put up, a slicing machine will be found one of the most useful things that can be had. Of course, this will often be of use for ordinary purposes, and, if once tried, will be considered more of a necessity than a luxury. While an ordinary adjustable knife or sauerkraut slicer can be used, a rotary slicer will be found very much more effective. Where a large quantity of potatoes are to be put up—and where they can be bought cheap in the fall—it will pay to dry them if there is

not any method of storing them otherwise; and for this a potato-peeler may be used to great advantage. This, like the slicer, will be of use not only during the drying and canning season but throughout the year.



Funnel for filling jars or cans. (For illustration of funnel in use, see illustration facing page 60.)



Handy pail colander for dipping and blanching products before canning, also for removing glass jars from sterilizer.

CONTAINERS

Of course, the question of containers in which to keep fruits and vegetables, either canned, dried or in storage, is one of the most important phases of the whole matter of saving food. While there is something of an infinite variety of containers, they may be

classified into jars, cans, crocks, cartons, bags, barrels and crates.

For home use, probably glass jars are employed more than anything else. They are adapted to the keeping of both canned goods and dried products. For general purposes they are, perhaps, better than anything else. The objections to them are: the expense, the inconvenience in storing them and in moving, and the admission of light to the products put up, which is objectionable in some cases. Where green glass is used, however, in their manufacturing, the latter difficulty is largely overcome. Each jar, of course, may be wrapped in paper to keep out the light.

Crocks and cartons are suitable for keeping pickles, jellies, preserves, jams and dried products, all of which, of course, are less liquid than the ordinary canned fruits or vegetables and are naturally more resistant to the attacks of bacteria. Bags, especially if they have been waxed, are suitable for keeping dried products. The most convenient way of using them usually, however, is to

keep a number of them in air-tight cans or in covered crocks, thus protecting them from moisture and from attacks by mice.

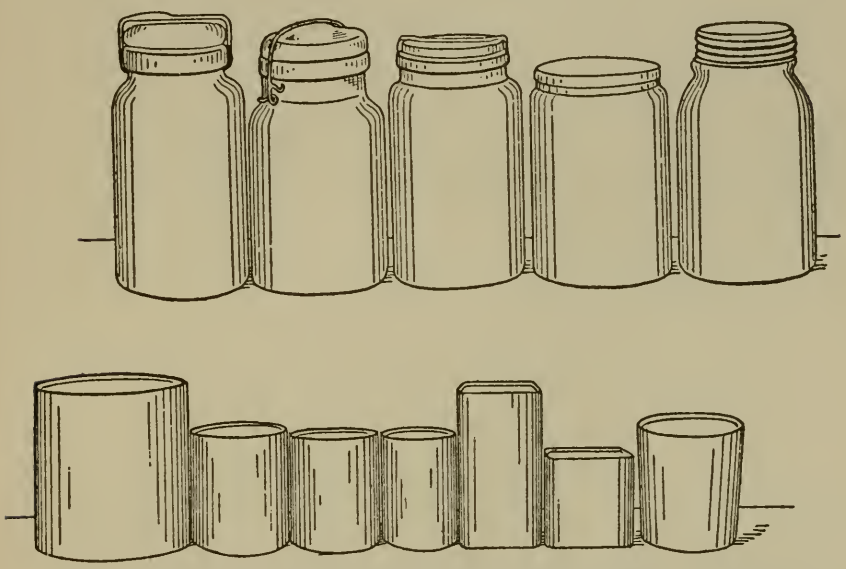
Barrels and crates of various types are suitable for the storing of vegetables in the cellar or storeroom, or for convenience, even where they are kept in pits or outdoor frames. Some of the different types will be found illustrated on pages 147 and 151.

The different types of jars, cans and paper cartons are described more fully under the equipment for canning and for drying.

FOR CANNING AND FOR PICKLES AND PRESERVES

For keeping vegetables or fruits by any of the above methods, of course, the two important things are the preparation or sterilization, and a container which will keep the food sterile after it is prepared. In modern methods, however, the container, in which the product is packed cold, is used *before* the sterilizing apparatus and, therefore, described first.

There are several distinct types of both glass jars and tin cans. For most of the home uses, jars are to be preferred to cans. While the original cost is more, they can be used repeatedly, the appearance is more at-

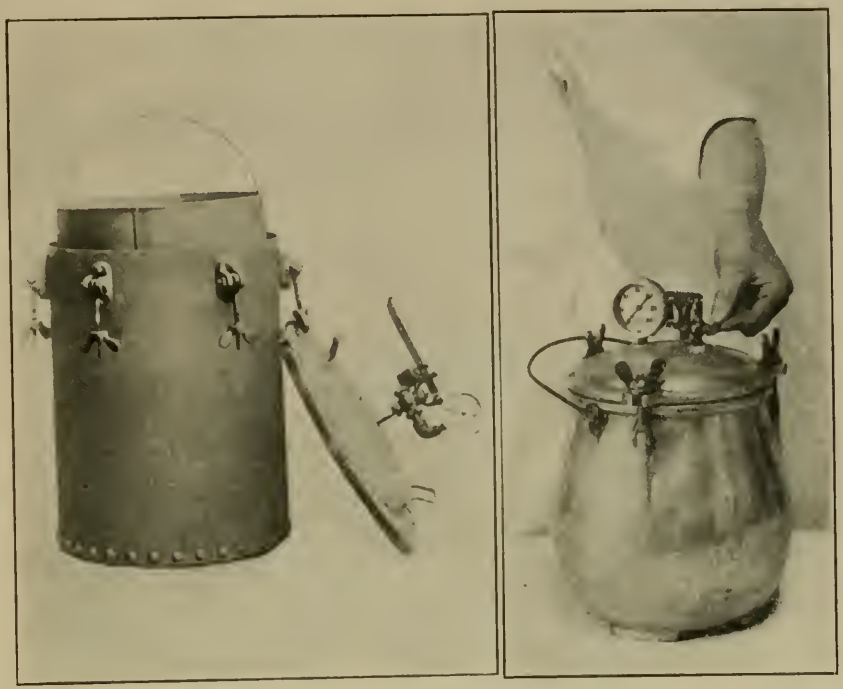


There are several good types of jars and cans on the market. The shape and size should be chosen to accommodate the product which is to be put up. Wide-mouth jars and "sanitary top" cans are the most satisfactory for most purposes.

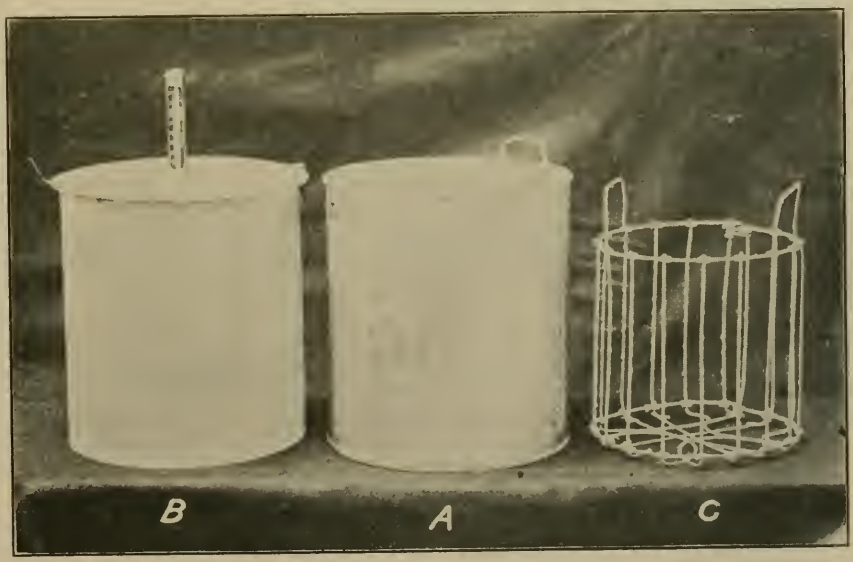
tractive and the flavor is likely to be better. Jars differ in shape and in the method by which the cover or cap is held in place, after the contents has been processed. Wide-mouthed jars are of advantage for most

things, but particularly so for putting up whole fruits or vegetables, such as tomatoes or whole corn on the cob and so forth; they are easier to fill, easier to remove the contents from in good condition, and easier to wash.

The majority of jars on the market are sealed by means of a rubber ring between the glass and the cap, which may be of glass, porcelain, or enameled metal. Both the quality of the rubber ring used and the evenness and surface finish of the glass and of the cover will affect the efficiency of the "seal" obtained. A leaky jar, no matter how small the leak may be, will eventually spoil. In one of the most modern types of jars, the rubber ring is dispensed with entirely, the seal being obtained by the use of a composition sealing material, which comes already applied to an enameled lid, and is automatically melted and set in the processing and cooling of the jars. The cooling of the product inside of the jars creates a vacuum which holds the lid in place. The old-fashioned screw-top Mason jar has very largely been replaced by



a—Cast iron steam pressure cooker, for use with pressure up to 30 pounds. b—Aluminum pressure cooker, much lighter and more convenient to handle.



A "water seal" canner, which will give a higher and steadier temperature than open kettle. a—container, with outer and inner wall; b—cover, with thermometer; c—rack for lifting jars or cans in and out.

this type and by jars with the lid held in place by a clamp instead of a metal screw-band.

Whatever type of jar is used, it is false economy to buy a cheap jar which is not made

A hand machine for putting on cork-lined metal-sealed caps. With one of these machines, bottles of all kinds can be utilized for pickles and preserves. The caps can be bought in assorted sizes, and a neat, tight, easy job is made of sealing.

of the best materials or is not accurately made.

Of tin cans there are three main types: those sealed with solder, and known as

"solder top" cans; those on which the covers are sealed *mechanically,* known as "sanitary" cans; and those with covers sealed on by means of hot sealing-wax, known as "wax" tops. The latter have not been as satisfactory for general purposes, although suitable for acid vegetables and fruits.

Some fruits and vegetables which are particularly acid should be put in cans known as "enameled"; these have a coating on the inside which prevents, to some extent, the action of the acid of the product on the tin.

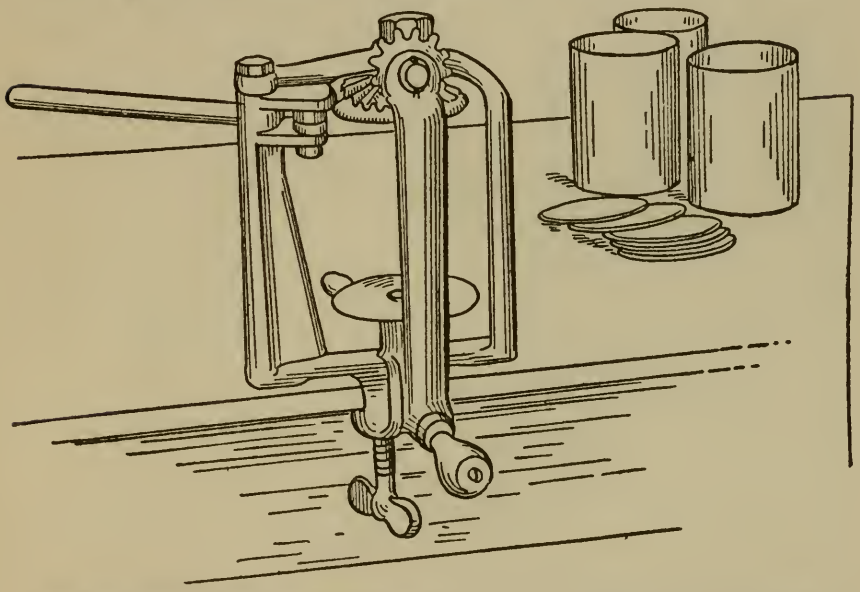
Cans are sold under standard sizes, as numbers 1, 2, 2½, and so forth; the size and capacity corresponding to these numbers are as follows:

THE CAPACITY AND DIMENSIONS OF STANDARD-SIZED CANS

Sanitary				Solder-Top	
Number	Height	Diameter	Capacity	Height	Diameter
1	4	2 3/8	11.6	4	2 11/16
2	4½	3 3/8	21.3	4 9/16	3 3/8
2½	4 11/16	4	31.2	4 3/4	4
3	5	4 1/4	35.0	4 7/8	4 3/16
10	6 15/16	6 1/8	107.0	6 7/8	6 1/4

SEALING TIN CANS

While the work of sealing a tin can, or even a good-sized batch of them, is done very quickly, once one gets the knack of it, it is quite an elaborate process to describe in



A small hand sealing-machine for medium size (No. 2) sanitary top tin cans.

print. The following directions are taken from Circular No. 158 of the University of California Agriculture Experiment Station:

Soldering Material: To fasten the caps on the cans, a *"capping steel"* is needed. This is a cylindrical soldering iron with a con-

cave end to fit over the cap, with which it must correspond in size. *Solder-hemmed caps* are furnished with a ring of solder. Their use saves much time, labor and solder. The small vent hole is sealed with a *"tipping steel,"* which is a small, pointed soldering iron.

In order to make a good union between the solder and the tin, the surfaces must be cleaned with a *"soldering flux."* This can be bought ready for use or can be prepared as follows: Place about one ounce of zinc in half a tumbler of strong muriatic (hydrochloric) acid and leave until bubbles cease to come off. If all the zinc dissolves add more until a little remains after all bubbling ceases. The solution is then strained through a cloth. It will keep indefinitely and must be diluted with an equal volume of water before using.

A gasoline *fire pot or torch* of the type used by plumbers is needed to heat the soldering irons.

Starting the Torch: The reservoir is filled about three-quarters full of good gasoline.

Soldering iron with self-heating attachment; a little more expensive than the ordinary sort, but always ready for use, and a great time saver.

The air pump is screwed into place and air pumped in to give as much pressure as possible.

The cocks of the two burners are then opened very slightly to allow a very little gasoline to flow out and wet the burners. They are then closed and the burners heated by burning off the gasoline. This process is repeated once or twice until the burners are hot enough to vaporize the gasoline rapidly.

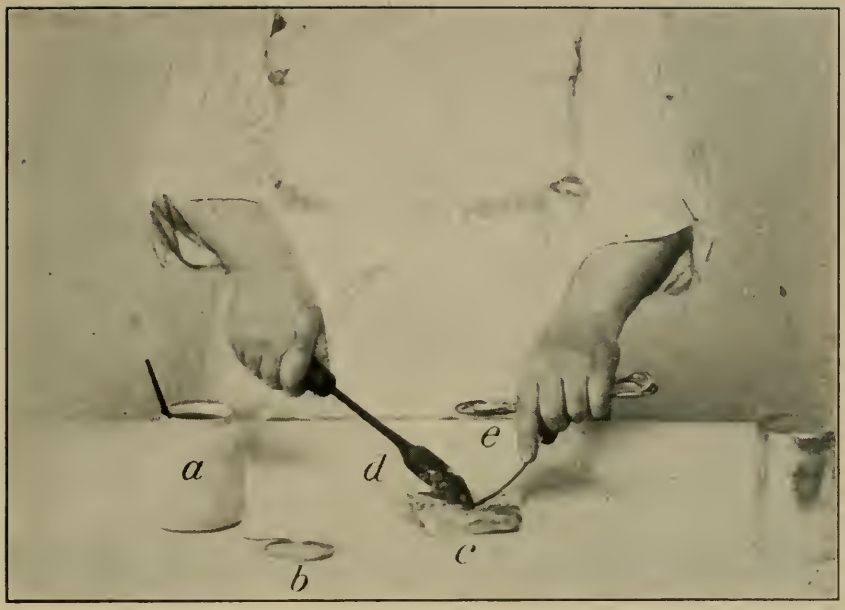
When the burners are sufficiently hot, the cocks are opened a little and the gasoline lighted. The flame should burn with a blue color and a roaring sound. The torch is then ready to heat the steels.

Tinning the Capping Steel: The steel is heated sufficiently to melt a piece of solder instantly but not to burn it. The bottom of the steel, both inside and out, should then be cleaned by filing off the scale. It is then dipped quickly into a little of the soldering flux and "tinned" by applying wire solder which should melt rapidly and cover the bot-

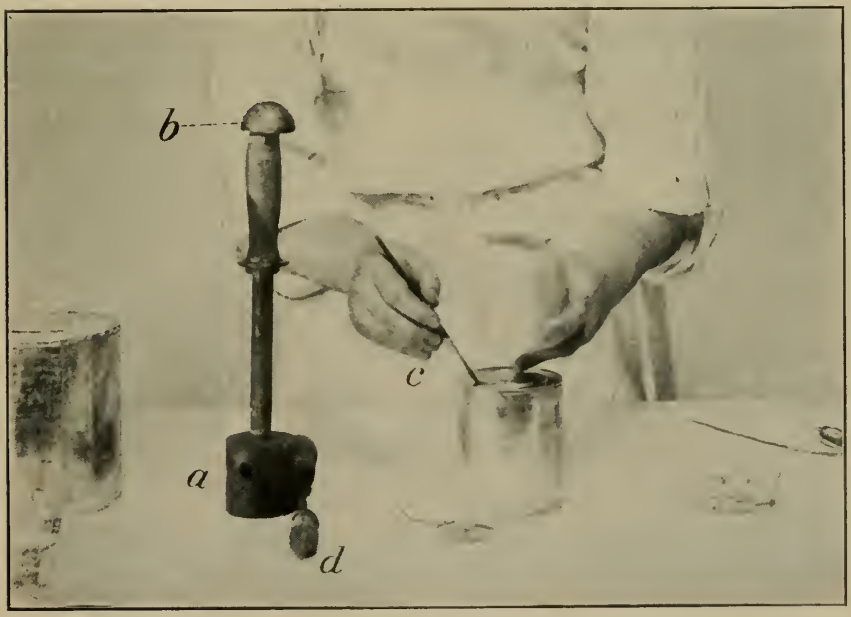
tom of the steel with a bright metallic layer. This layer should extend to about one-half an inch from the bottom. The steel may also be tinned by filing it clean while hot and dipping into a mixture of sal ammoniac and small pieces of solder.

This process need not be repeated unless the steel becomes accidentally too hot and burns off the tinning. If the steel is wiped occasionally while hot with a coarse cloth and dipped regularly into the soldering flux when used the coating should last indefinitely.

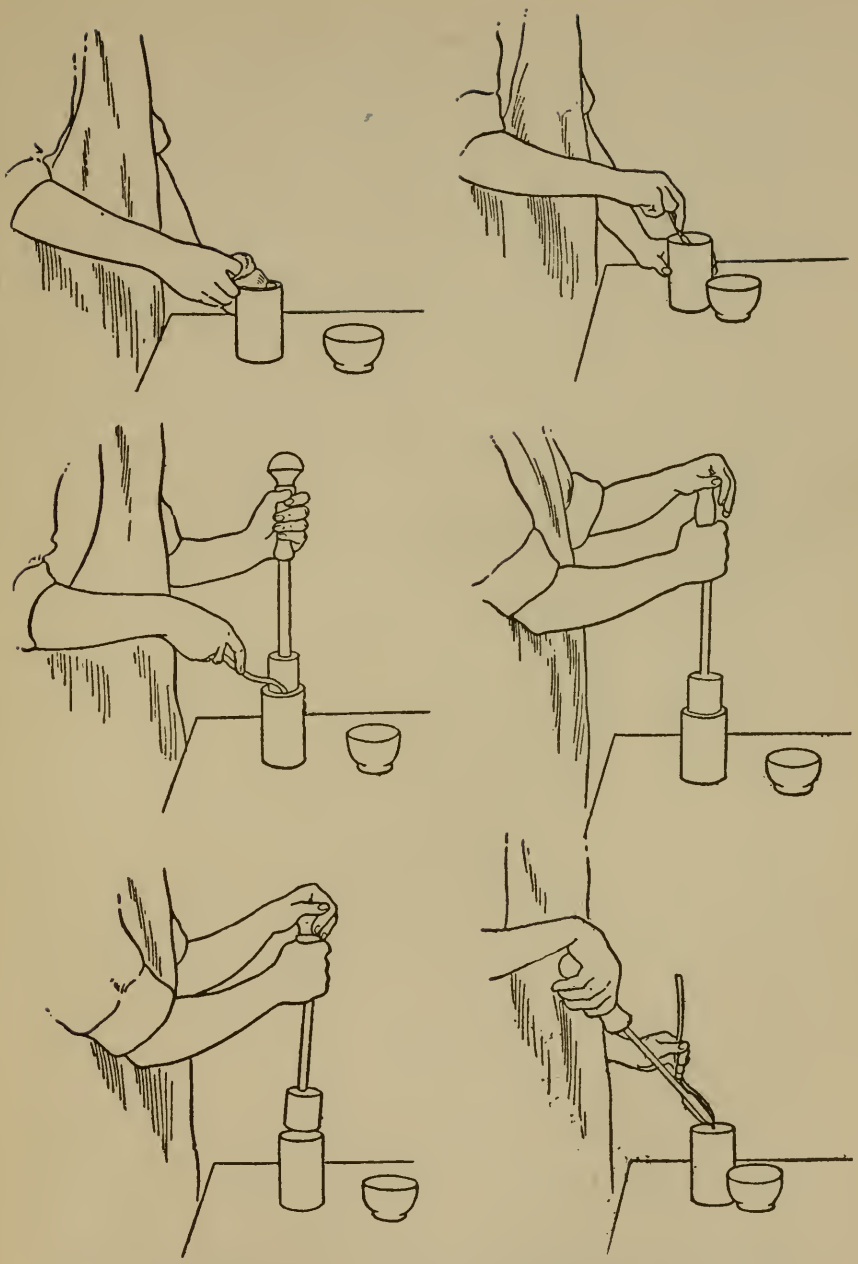
Soldering the Cap: The grooves around the tops of the filled cans are wiped to clean them from juice and pieces of fruit, and the caps applied. A brush dipped in solder flux is then passed around the groove. The capping steel, heated until it will melt solder instantly, is cleaned by dipping in solder flux and applied immediately to the groove of the can. If plain caps are used, a little solder is melted around the bottom of the steel and allowed to run into the groove. *Only a little is necessary.* If solder-hemmed caps are



Getting ready to seal tin cans. The soldering iron must be coated with tin. a—flux jar and brush for applying same; b—solder-hemmed cap or top for can; c—bar sal ammoniac; d—soldering iron (for tipping copper); e—roll of wire solder.



First step in sealing can; applying the liquid flux to rim of can. a—capping iron; b—head of inner steel, working in handle; c—applying flux to rim of cap; d—soldering iron.



Sealing a solder top can. 1. Wipe the juice and syrup from the groove. 2. Apply cap and wipe the groove with a brush dipped in soldering fluid. 3. Place clean hot capping steel on can and melt a little solder into groove. 4. Turn the top steel to distribute the solder. 5. Press down on center rod, and raise steel a few seconds to allow solder to harden. 6. After exhausting can wipe vent hole and seal with a drop of solder.

used, no other solder is needed. The steel is turned a few times to distribute the melted solder evenly in the groove and then slightly raised while pressing down on the center rod for an instant until the solder hardens.

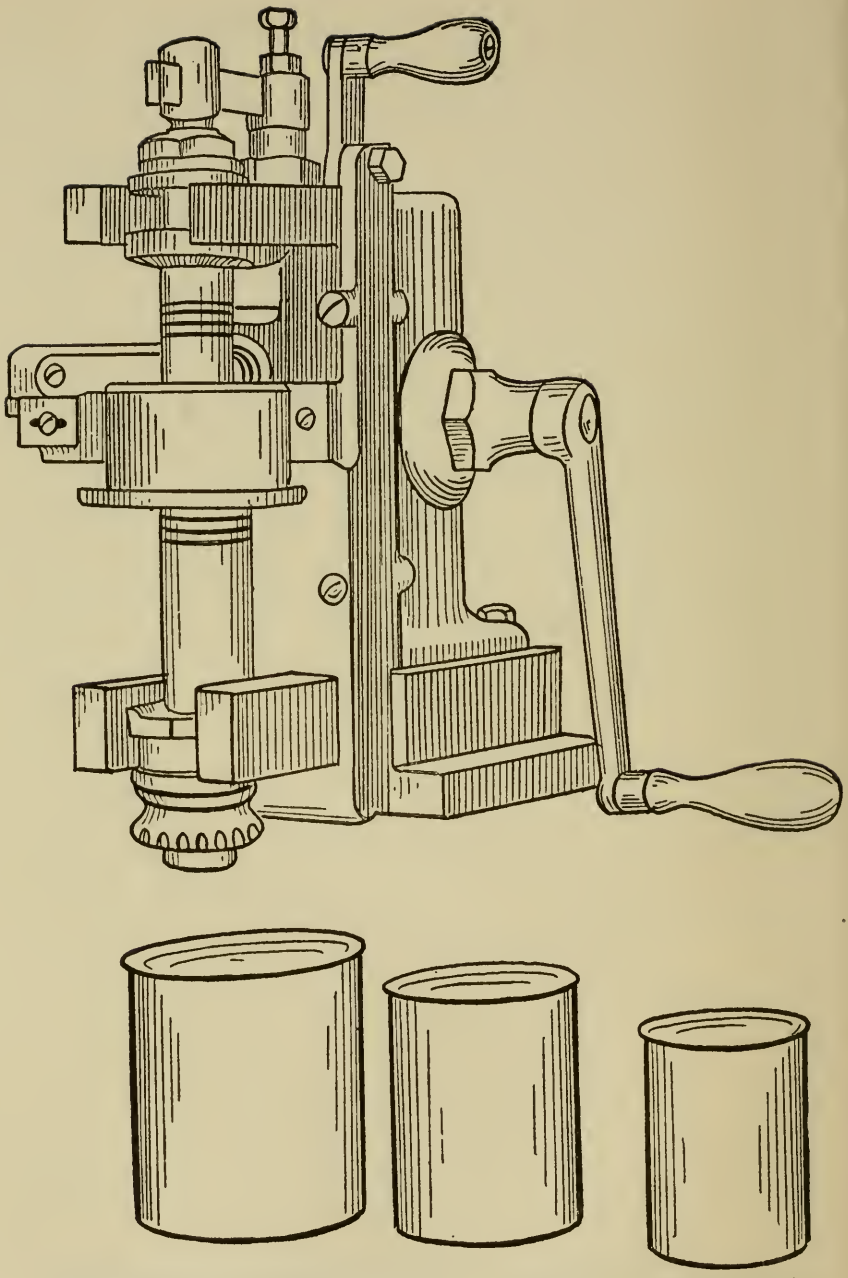
Tipping: This term means the closing of the small vent hole in the top of the can with a drop of solder. It is done while the contents are hot and before sterilizing. The edges of the holes are cleaned with a brush dipped in solder flux. Very little must be used or it will run onto the can and injure the contents. After applying the flux, the properly tinned and heated tipping steel is applied to the hole and touched with a piece of wire solder. This causes a small piece of melted solder to run to the point where it closes the hole and is smoothed with a quick twist of the steel.

Exhausting: This process is necessary with nearly all air-tight containers which are to be sterilized by heat. It consists of a preliminary heating before sealing and be-

fore the final sterilization. It results in expanding the air inside the container and thus driving out most of it. When the sealed container and its contents cool, the small amount of air still enclosed contracts and produces a partial vacuum. If cans are sealed while the contents are cool they will swell on heating, owing to the expansion of the heated air. Exhaustion is also necessary with jars. If the covers are screwed or clamped on, the expanding air may break the glass. If they simply rest on the rubber or other sealing ring, the vacuum is necessary to keep them in place.

If the fruit is hot when placed in the cans or jars they may be sealed and sterilized immediately as the heat will exhaust the air sufficiently.

For the sanitary cans, full instructions are sent with the different machines made for the sealing or clamping on of the covers. One of these machines is shown in the illustration on page 186.

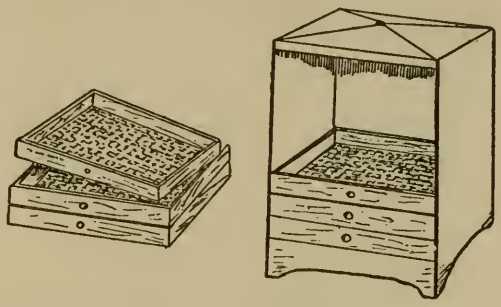


Sealing-machine for mechanically sealed or "sanitary" tin cans; especially good for Canning Clubs, Granges, and so forth.

SPECIAL EQUIPMENT FOR DRYING

The three methods for drying, as already described, are sun drying, evaporating by artificial heat, and dehydrating—drying by the use of an air-blast—the latter, for home use, usually being produced by an electric fan.

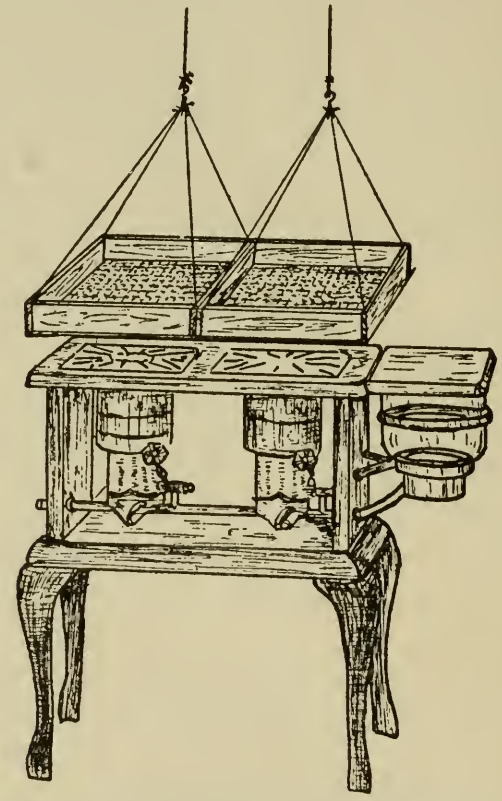
Light frames of wood, with bottoms of mus-



Small metal drier with removable trays for using over the stove.

lin or fine mesh wire, and made of any size which will be convenient for the amount of product to be handled, may be used for sun drying, but it will be much better to take the pains to construct a frame with a glass cover, such as shown in the illustration on page 96, which will protect the product from dust, dew and showers.

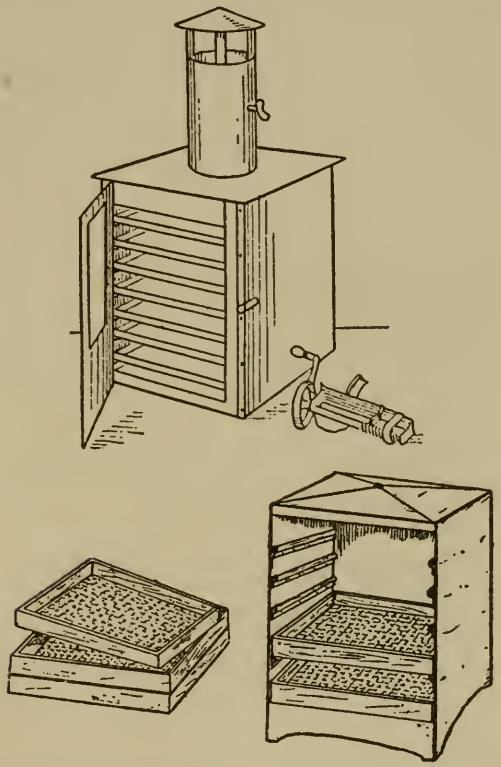
For drying in artificial heat, a plain, open nest of trays, such as that shown in the illustration on page 99, which can be either



Arrangement for suspending trays over kerosene stove for drying.

set on the stove or hung above it, can easily be made at home. A regular drier, which consists of a set of trays enclosed in a metal case surmounted by a chimney, makes much

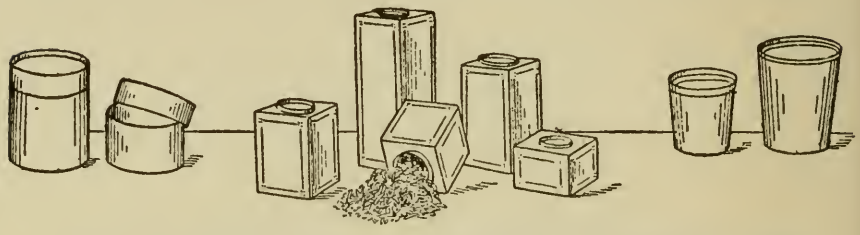
more efficient use of the heat available. For drying small quantities of food of this kind, a drier like that shown on page 103, which



Two small driers for use on top of stove; the type with the chimney, and a door to protect contents of trays from dust and ashes is the better.

is made on the principle of a double-boiler, with water between the stove and the drying surface, is very convenient, as there is no danger of burning or scorching the product

being dried so long as this water pan is kept full. A drier of this kind can be kept in use for a large part of the time for saving small surpluses of the various garden vegetables, which may be prepared for the drier at the same time that the remainder is prepared for the table. These little savings may

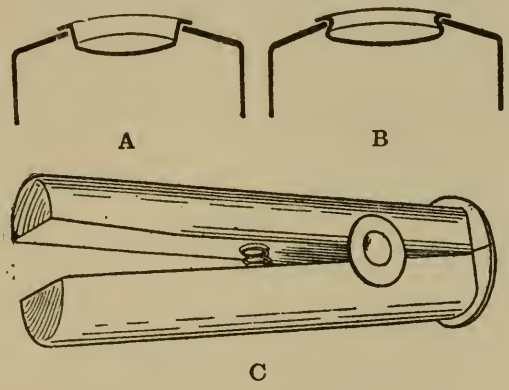


Paper containers of various sizes and shapes are available for dehydrated products, and for jellies, pickles and preserves. They are sanitary, neat and cheap.

seem small at the time, but in the aggregate will amount to a great deal.

Trays for use with a small electric fan such as is commonly employed in the house can be made about three feet long and a foot to eighteen inches wide. They may be made from any light material with a lath or wire bottom. If all these are needed at one time, place them end to end as shown in the illustration facing page 100.

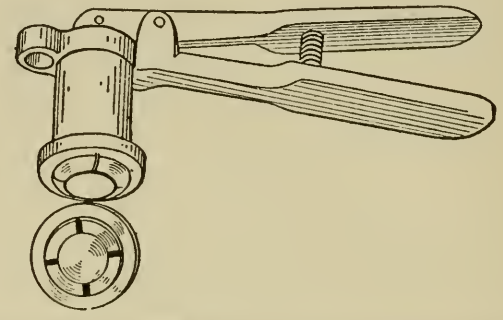
While bags, tin pails, or other containers of this kind may be used for the dried vegetables or fruits, after they are conditioned and ready to store, by far the most satisfactory containers (unless one has a surplus of glass jars available for use, which is not



A simple tool for crimping in the caps on paper containers, so that a tight, permanent job is secured. A shows the cap put in place by the fingers. B, the same after the bottom has been extended. C, the simple tool for doing the work.

likely to be the case) are the prepared cardboard or fiber containers of various sizes and shapes which may now be bought at very reasonable prices. They are moisture- and light-proof, easy to handle, easy to keep, and cheap enough so that the products may be put up in small quantities, the advantages

of doing which have already been explained. The method of air-drying is comparatively new; and, in all probability, there will be small outfits for home use of this kind put on the market in the near future.



Another tool for putting caps on paper or fiber containers.

EQUIPMENT FOR STORING

From what has already been said and illustrated in the chapter on storing, a pretty good idea has been given of the kinds of containers desirable for use in this connection. The mistake usually made is to make no attempt to secure the required supply of barrels, boxes, crates and so forth until they are actually needed. It is far better to begin gathering these during the summer; so that one may be sure of having plenty of them,

and of being able to select those which are in perfect condition.

An ordinary two-inch auger with which to bore holes in barrels and boxes which are

TABLE SHOWING SIZES OF THE CONTENTS AND CAPACITY OF PAPER CONTAINERS

Always order by Number		Outside Dimensions of Container in inches	Capacity in Cubic Inches	Average Contents of Home Dried Vegetables (Avoirdupois Ounces)	Approximate Equivalent of Fresh Vegetables
No.	Liquid Measure Size				
8	Half Pint	2⅛ high 2¾ Square	15	2	1 lb. 2 oz.
12	12 Ounces	3 high 2¾ Square	22	3	1 lb. 12 oz.
16	Pint	4 high 2¾ Square	28	4	2 lbs. 4 oz.
20	20 Ounces	5¼ high 2¾ Square	38¾	5	2 lbs. 12 oz.
32	Quart	7¾ high 2¾ Square	55¾	8	4 lbs. 8 oz.

used for storing vegetables or fruits will usually pay for itself each season it is used. The importance of ventilation around the product being stored has already been emphasized. The ordinary packing-case or box, which can be obtained from groceries or dry goods

stores, makes a cheap container of convenient size and shape; but, for most things, they should not be used unless a generous number of holes have been bored in the bottoms and sides. Special containers, such as onion crates, vegetable flats, barrels, and so forth, have already been mentioned.

CHAPTER IX

CONCLUSION

From the foregoing chapters, it must be very evident that the matter of saving food in the home can be made a very important part of the household economy. It is worth taking seriously; it is worth doing carefully; it is worth systematically planning for.

As yet, the matter of real system in food saving has not been very carefully worked out. Our canning and drying is done, even when it is done skillfully, on a more or less haphazard basis. It is possible with a little study, however, to *plan definitely* how much and what kinds of food can profitably be put up in summer and fall for winter use, and to arrange for the growing of vegetables and fruits, or the buying of them, with these definite aims in view.

For instance, it is not a matter of much time or thought to figure out the number of

days from the end of this year's peach season (say, October first) to the beginning of next year's (say, July fifteenth). That means for nine and a half months, or thirty-eight weeks, fresh peaches will be hard to get. If one wants canned peaches and dried peaches, an average of once each week for that period, it is an easy matter to calculate about how many cans of fruits or pounds of dried product should be put up. The same with beans, or corn, or spinach. Knowing these things, *in advance,* the work of providing them will be much simplified.

But this is not all that may be done. When one has determined what can be saved for winter with advantage, the next thing is to find a way of saving it with the least trouble and expense.

While work in the home kitchen is practical and gives good results, it is not the most economical way of putting up things which are wanted in considerable quantities, such as tomatoes, corn, beans, etc. It is very little more work to put up fifty cans of product,

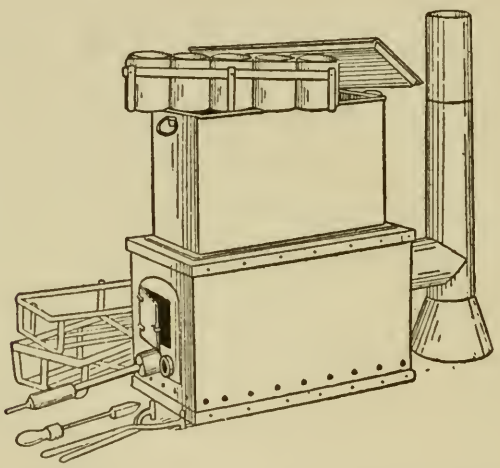
with suitable equipment, than to put up ten with the means usually at one's disposal in the home kitchen.

Coöperation in canning and drying is one of the most profitable means of saving for winter.

The American housewife, generically speaking, has yet to learn the meaning of "*coöperation.*" She has yet to realize that she and her friends, by buying together, by working together at such things as canning and dehydrating, can save a very considerable percentage on their table budgets. Merely to be called a "saver" has, until very recently, been almost a term of reproach, and considered a reflection upon one's "provider."

The use of a canning or dehydrating equipment by several persons does not imply the necessity of providing any special organization for that purpose. The grange, the garden club, the ladies' aid,—any suitable organization may furnish the nucleus for the purchase of such an outfit. The saving made possible by buying supplies in quantity, as

well as the saving in work, will make any time spent in working up an interest in such an undertaking a good investment even from a pecuniary standpoint. From the point of view of social service, and for food conser-



A large capacity self-contained canner and evaporator combined, suitable for community or club use. This outfit has a capacity of 600 3-lb. cans per day, and 3 to 5 bushels of evaporated fruits or vegetables per day.

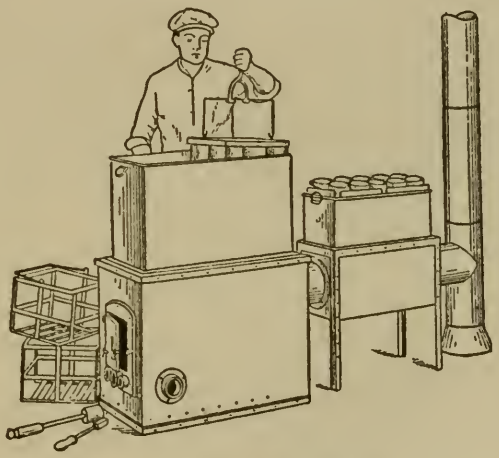
vation, I do not know of anything that is more important.

COMMUNITY CANNERS AND DRIERS. FOR COMMUNITY GARDENS

More and more the vacant lot "movement" is coming to be recognized as a practical,

workable scheme for helping food production, and employing both idle land and idle time to advantage. But a very large proportion of the food that is thus produced is lost.

In connection with the community garden



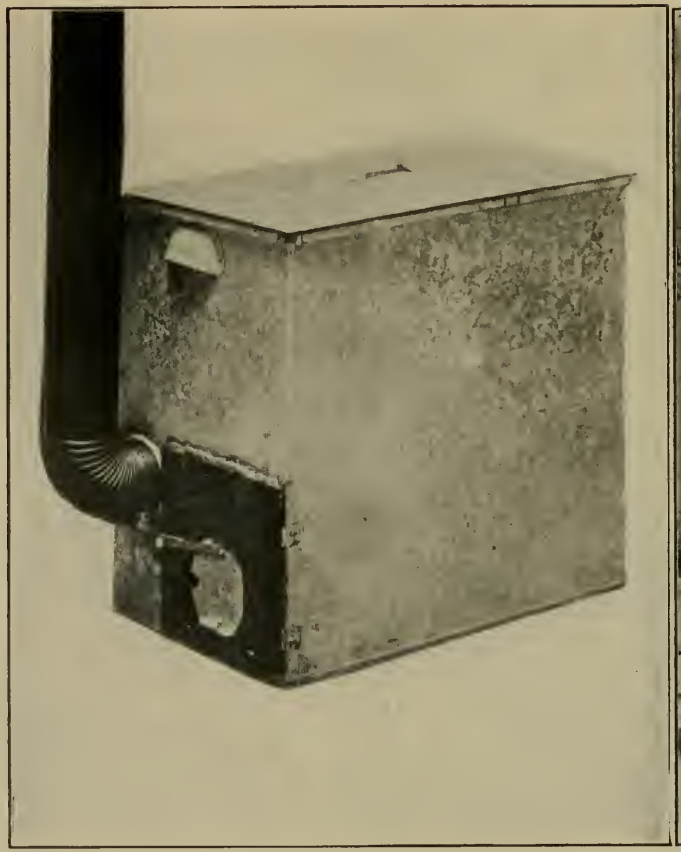
A larger outfit, canner, evaporator, and sterilizer combined; with a capacity of 6,000 3-lb. cans, or of drying 15 to 20 bushels of apples or other fruits per day.

idea, there is a big opportunity for the community use of equipment for canning and drying. Outfits of considerable capacity are not very expensive. They are simple to use and are not likely to get out of order. This makes possible their use by a number of persons; or by an organization paying some of

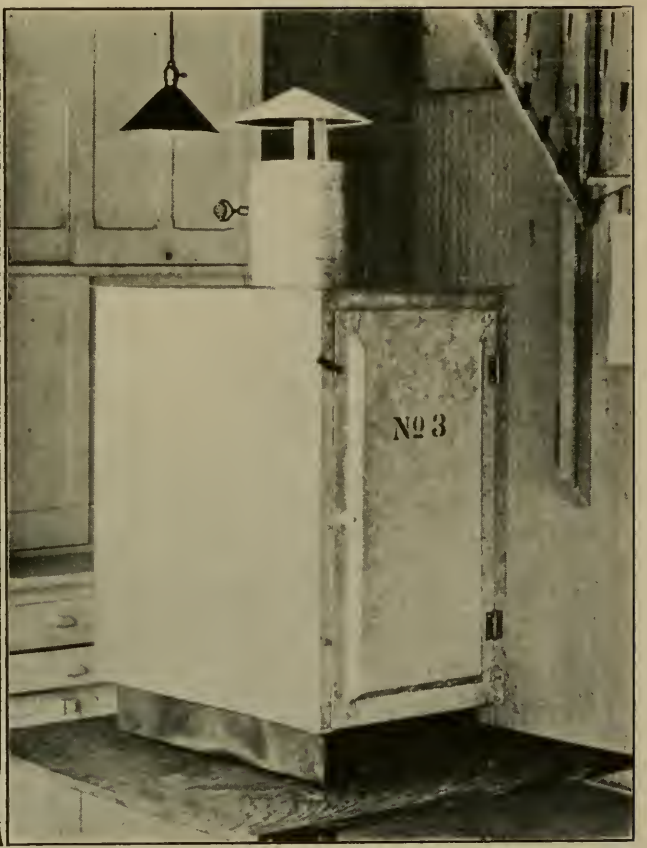
its members to do the work. The unqualified success which the Girls' Canning Clubs have had throughout the country is sufficient proof as to what may be accomplished in this line without very much previous training in co-operation.

A LOOK AHEAD: LESS FRUIT TO BE WASTED IN THE FUTURE

For generations past the world has produced an abundance of fruit and vegetable food to feed all of its millions of workers. The fact that they have *not* all been sufficiently fed is due to our unscientific and inefficient method of distributing the food after it has been produced. It has been a common thing—so common, in fact, that it is mostly the normal condition—for food to be left by the thousands of bushels in the country, where those who had produced it could not dispose of it at a price sufficient to pay for the handling of it, while in the cities the poorer classes, for want of food, went undernourished, if they did not actually starve.



A large capacity canner, suitable for club or commercial use. Fire-box and smoke stack, with large open vat for canning, in one.



A good type of drier for use on the stove; fitted with drying trays inside.

While individuals have been blamed for this condition, it has been not they, but our general system of food distribution, that has been at fault.

These conditions are gradually being changed, not by the arrest and fining of profiteering individuals, but by more intelligent and purposeful organization on the part of both producers and consumers. The newer market methods—which keep the consuming public informed through newspaper notices and otherwise, of the products which are plentiful or in oversupply, and at what prices they ought to sell—have proved to be a tremendous stimulation to canning and drying. This movement has been the result of cooperation on the part of the *producers*.

There are hopeful indications in many directions that the community canning and drying idea—coöperation by the *consumers*—will spread with equal rapidity. It seems likely that the very near future will see in existence community canning and drying plants on a scale large enough to be thoroughly economi-

cal in operation, and making possible co-operative buying on a large scale, and the saving of all home-grown products. This will be another tremendous step in the direction of the practical commonsense conservation of food.

In the meantime, it is up to every householder in the country, both for her personal advantage and as a good citizen, to adopt, either in her own kitchen or as a member of some organization, the motto:

"SAVE IT FOR WINTER!"

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